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THE

SWIMMING INSTRUCTOR.

W. WILSON.

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THE

SWIMMING INSTRUCTOR.

THE AUTHOR.

THE

SWIMMING INSTRUCTOR:

A TREATISE

ON THE

Arts of Swimming and Diving.

BY

WILLIAM WILSON,

Author of "Swimming, Diving, and How to Save Life," "The Bather's Manual," "Hints on Swimming."

ILLUSTRATED, WITH PLATES DRAWN FROM LIFE, BY ALEXANDER DAVIDSON.

LONDON:
HORACE COX,
"THE FIELD" OFFICE, 346, STRAND, W.C.

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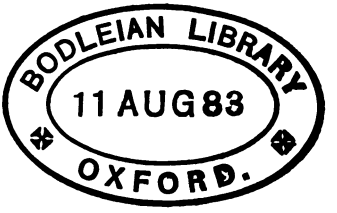

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PREFATORY NOTE.

THE practice of swimming, as a healthy exercise, a useful and graceful accomplishment,—the true "poetry of motion"—and a life preserver, has attained to such popularity, and has now such a hold on the public mind, that scarcely any apology for introducing the subject, no matter in what form, is necessary.

But, as the present writer now appears treating of the same subject for the third time, his excuse for doing so is, that when writing his other works he had not said all he wished to say, and since then the advanced branches of the art have even more prominently asserted themselves, so much so, indeed, that he considers they should have greater attention devoted to the elucidation of their many details than could be done in a work which was written more for the novice than for the adept.

Suggestions received from time to time as to what might have been done in the first work, revealed the

fact that there is still room for instructions on branches of the art which have not before been treated of by anyone.

While starting in the present instance with instructions for the learner, care has been taken to avoid repetitions of anything that has already appeared in former works.

The writer would desire to take advantage of this opportunity to thank the Press in nearly every part of the kingdom for the clever and too indulgent criticisms of the former *brochures*. To the many friends and lovers of the art who have written in kindly strains, as well as to the public for the encouragement given, and to which is due in no small degree the appearance of the present effort, he likewise tenders his grateful thanks.

GLASGOW, *April*, 1883.

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THE SWIMMING INSTRUCTOR.

INTRODUCTION.

SWIMMING is one of the oldest arts, if we are to form an opinion from the fact that no trace of its origin, discovery, invention, or improvement is to be found in any of the ancient writings. No matter to what author we refer, no mention is made of it as a new idea in any sense.

Nor is this apparent omission the result of inadvertence, or of any want of importance attached to the subject, for, although nothing is said as to its history, we find mention made of it on many occasions.

On the old Greek and Roman monuments which are from time to time being brought to light, representations of swimmers are many times seen, as well as pictures of fish, as applying to the art; and the artists of those bye-gone ages have handed down to posterity references to swimming and bathing in

their hieroglyphic and symbolical writings. There are to be seen in the tablets in the Assyrian department of the British Museum several references to the art. Mr. Layard, in his translation of one of these, says: "On it was a sculptured picture of three warriors, probably escaping from the enemy; they were swimming across a stream, two of them on inflated skins, the third, pierced by arrows shot by high-capped warriors kneeling on the shore, is depicted struggling against the stream without any support."

Homer frequently alludes to bathing in the heroic ages. Some of his heroes bathed in the rivers and seas, while others refreshed themselves in warm springs. Lycurgus, the Spartan lawgiver, insisted that swimming should form part of the regular physical exercises of the youth of Sparta.

Seneca tells us that he was himself so fond of bathing that he used to plunge into the river in the middle of the winter season; and the Romans practised the art most regularly in the days of their native city's splendour and power; and we are told that the swimming race occupied an important place in the *Campus Martius* competitions.

Cæsar was always looked upon and respected for his powers as a swimmer; and among other notable instances of his prowess in the water was that occasion, when, on the point of yielding to the attempt of Ptolemy, who had in a treacherous manner attacked

him at Alexandria, he threw himself into the sea, and by swimming succeeded in reaching one of his ships; he then returned with his fleet, and in the end Ptolemy was defeated, and Cleopatra proclaimed queen of Egypt.

Bathing and swimming were solemnised among the public exercises of Rome; and, as a proof of the perfection attained by the Romans in the erection of establishments devoted to this portion of the daily routine of their lives, we have only to look at the ruins, palatial and grand even in their decay, and which elicit the admiration and surprise of all who behold them. With all our boasted civilisation and progress in sanitary science, our efforts are pigmy when compared with the advantages afforded the natives of ancient Rome, in order to have that important structure the human frame in a clean and healthy condition. Augustus was the first to introduce public baths into Rome, and the luxury was supplied gratis to the citizens. Would that an Augustus would rise in these later days, and supply some of the benighted towns in our enlightened kingdom with the means of complying with the injunction to "wash and be clean." Our grandest bathing establishments are dwarfed into insignificance by these old Roman baths.

Fabricius records the fact that there were in the city of Rome at one time no fewer than 856 public baths; and some idea of the extent to which bathing was indulged in may be formed from the fact, that the

swimming pond of the bath of Diocletian measured 200 feet long by 100 feet wide, and the building was large enough to accommodate at one time 1800 persons.

The bath at Caracalla measured 1500 feet long, 1200 feet wide, and was nearly a mile in circumference.

Swimming and bathing have, however, greater recommendations than their age or antiquity. Bathing is necessary in every condition of life, in every phase of society. To maintain health and life, bathing must form an important part of our daily routine.

Bathing, with all its recommendations, and they are many, is however a comparatively poor enjoyment if one is unable to use his limbs in the movements of swimming. A very small part of the pleasures and benefits of bathing are enjoyed if one cannot swim, while its dangers are increased. Half the pleasure of coast life is bathing, and the greater part of this pleasure is swimming. Of swimming it may be said that it is a pleasurable pastime, a physical necessity, a healthy accomplishment, a sanitary reformer, and humane in the highest degree.

The peculiarity of the exercise compared with all others adds to the sense of enjoyment. The body and limbs are freed from all restraint, all conventionality, all formality, all stiffness disappear, and one is so light-hearted that he feels himself almost capable of soaring in the air.

The clear, light, and airy feeling as one moves about in the water is almost indescribable. It is so agreeably pleasant to feel oneself moving and floating along and about without any weight of even the body itself; there are no incumbrances to free motion, no substances against which to knock the body in any of its many parts; it is thrown about in all shapes, fantastic it may be, but graceful as well, free of all care or anxiety as to any collision of matter with matter; we are in an element which is completely unresisting.

The experienced swimmer when in the water may be classed among the happiest of mortals in the happiest of moods, and in the most complete enjoyment of the most delightful of exercises.

CHAPTER I.

COLD WATER BATHING.

FOR many years there has been an idea, shared in by nearly all classes, that to immerse the body in cold water when it had become heated, whether from exercise, or from the higher temperature of the atmosphere or its surroundings, was not only unnatural or foolish or unnecessary, but that it was fraught with dangerous consequences.

To a very limited extent only is this the case, and that is when the body has become weakened by any excessive muscular strain which has enervated the nerves and muscles; even in such circumstances, a dip in cold water after having had a brief rest will prove of great benefit.

In ordinary circumstances it has been repeatedly demonstrated that the cold bath is not only free from danger when the body is very warm, but that at this time more than at any other the effects are most beneficial.

It is therefore advisable that those persons whose

constitutions are not of the strongest, or who may be weak from disease, or recovering from illness, should indulge in exercise sufficient to increase the heat of the body before going into the sea or into a cold water bath. Not only will doing so prevent chilling while in the water, but it will help to bring about the reaction, the nerve glow, which is so necessary on leaving it.

This reaction, which takes place on leaving the water and drying the skin, is in proportion to the strength of the vital powers. It is this reaction, this rush of blood and heat to the surface of the whole body, that enables the system to derive advantage from the bath; and when this glow does not take place, or does so in an insufficient degree, the immersion has been made under unfavourable circumstances. The body may be too weak, the stomach out of tone, the bather may have been too cold before entering the water, or he may have remained rather long in it.

With the hardy or habitual swimmer, the active use of the limbs serves to maintain the animal heat for a greater length of time than can be the case with one who is unable to swim. Cold is certainly experienced in a longer or shorter time; and on first feeling this sensation one may be inclined to leave the water, which, as a matter of health, is the wiser plan. Should one wish, however, to accomplish a given distance, or practise for any special occasion, it may be as well for him to know that after the first chill

warmth will again return, and any feeling of cold will not return for ten or fifteen minutes, and in many instances, if one's body is well, he may leave the water after an hour's swimming not much colder than when he entered it: especially is this the case if the air is at all of a comfortable temperature.

In some cases, even with full red-blooded and robust people, a shivering takes place, accompanied with a spasmodic catching of the breath on first entering cold or even partially tempered water.

Some of those so affected at once jump to the conclusion that bathing is not for them; but after several immersions this feeling quite wears off, and they are afterwards as much at home in the water as the most accustomed bather or swimmer.

Cold bathing has many times been proved to be of signal benefit in cases of tetanus or lockjaw, as it produces a salutary reaction of the system. It has been tried with eminent success in cases of convulsions, also in insanity, and sometimes in chronic diseases, and in cases of chronic rheumatism.

Mr. McGill, in his work "Travels in Turkey," makes mention of the fact that, in Russia, cold bathing in the sea is much practised. He says it is very common for the males and females of all ages to bathe together in the open sea at all seasons, and they seem to enjoy with primitive simplicity the pleasures and benefits of this favourite pastime.

The safety with which people can enter cold

water could not, we think, be more convincingly exemplified than in the several mid-winter swimming matches that take place: in London, on the Serpentine, on Christmas morning; in Glasgow, on the river Clyde, at noon on New Year's Day; and in Dundee, on the river Tay, on the first day of the year.

There has never been any accident, nor has any evil resulted to a swimmer in either of these competitions, which have been fixed so as to take place during the coldest part of our winter season.

A club of enthusiastic swimmers, styling themselves the Psychrolutes of Portsmouth, bathe in the sea every morning in winter as well as in summer. It has been said of this body, that when frost is on the ground, and when their rooms are too cold for them, they rush to the bathing rendezvous and temper their skins in the waters of the Solent.

A few members of the Association of Open-Air Bathers, in Dundee, bathe in the sea every morning the whole year round, and each morning the temperatures of air and water are carefully taken and registered.

At Portobello, the same thing is done by some of the members of the swimming club of that favourite watering place of the east of Scotland.

A well-known member of the Forth Swimming Club, in Edinburgh, enjoys his dip in the sea in the winter mornings, and one or two members of the West of Scotland Swimming Club, Glasgow, dive into

the waters of the Clyde before six o'clock every morning in winter. The writer has been present when these swimmers had to walk over the ice, and it cracking under their bare feet on the edge of the water, with a sound like splintered glass, before going in at all.

We are cognisant of other instances of hardy bathing, but we think enough has been said to prove the assertion that there is more health and enjoyment than danger attending cold water bathing, no matter what the season or temperature.

CHAPTER II.

SEA BATHING.

ALL medical authorities agree that sea bathing contributes in a very marked degree to the strengthening and invigorating of the mind and body of man. We are, for this and other reasons, fain to look upon it and class it as the most powerful sanitary and hygienic agency, not only for the cure, but for the prevention, of many forms of disease.

By reason of the greater density of sea water compared with fresh, it promotes the glow of blood to the surface more effectually when the body is immersed in it. This density is due to the presence of saline ingredients which act as stimulants on the skin, lessen the rapidity with which evaporation takes place, and so the loss of heat generally experienced in connection with fresh-water bathing is materially decreased during, and immediately after, the salt-water bathe.

The fact that the sea is constantly in motion, causing a regular and never-ceasing aeration, and the

impingement of the waves and breakers on the skin, accounts to a great extent for the additional zest and liveliness of feeling which one cannot hope to enjoy in still or even running fresh water.

For these reasons a great number of persons can benefit by bathing in the sea, who if bathing in fresh water would suffer from want of the necessary reaction and other evil effects.

The bather can remain in the sea a much longer time with impunity, and experience no after feelings of lassitude or shivering, the results of defective circulation, or weakness of the heart's action—and no doubt, as the body is more likely to be exposed to the rays of the sun and the open air, sea bathing has these additional advantages over bathing in an inclosed bath. To the exhilarating, appetising, and health-renewing properties of the air at the coast, is due the love and desire for being near the sea so often experienced and expressed by those who live in inland towns and crowded cities.

The additional quantity of oxygen and ozone is supplied to the body by reason of sea and plants, and in greater volume. The air, as well as the water, is denser; this is caused by the action of waves and the forming of spray. Our appetites are increased by the inhalation, and so our bodies are to a greater degree being renewed and invigorated by the increased consumption or combustion of carbon by the additional supply of oxygen.

Thus is vitality increased, strengthened, and maintained, and our desire to be near the sea, on the sea, or in the sea, is in every sense a thoroughly natural inclination.

But, as the atmosphere at the coast is so widely different in its constituents or composition and character from that of crowded and smoky inland towns, some little discretion is necessary that we may properly use and benefit by the new means of life and of health offered by the change.

The too common habit of hurrying to the beach, and the precipitant rush into the water on arriving at a coasting or watering place, is much to be condemned. One's system must become accustomed to the change, or the hurried plunge may react in such a way as to be productive of positive, and it may be irreparable injury, especially to persons of a nervous, weak, or debilitated constitution.

If one has come a long distance by rail, the body is to some extent, no matter how little, tired or enfeebled by the journey. It will therefore be advisable, on arriving at comfortable quarters, to partake quietly and leisurely of a plain substantial meal. After which there should be at least half an hour's rest, but no sleep. This may be followed by an easy and slow walk in the open air, and so digestion will have set in, and the system will become acclimatised so to speak; and if one is anxious for it, a short bathe or swim may be indulged in, but not sooner after the

meal than two hours. We should advise, however, no bathing in the sea on the day of arrival.

In the case of excursionists whose time is certainly limited, the meal partaken of on arrival should be light, and the desire to bathe must be curbed until the proper time has elapsed after food. But do we not find it too often to be the case that, although the "cheap-tripper" hurries into the sea immediately on his arrival in sight of it, he has hours to spare, it may be to pass, between the dip and the time when he must leave for home?

In these circumstances we leave it to the consideration of any one whether the wiser plan is to go into the water at once, or wait leisurely and have the benefit of all the good that can be had in the little time at one's disposal.

Were common sense to assert itself, such precautions would prevail, good would result, and less would be heard and read of the many cases of drowning which happen from time to time at our popular watering-places, the favourite resort of the excursionist and cheap-tripper.

These accidents are, in nine cases out of ten, attributable, not so much to cramp, as to the long stay in the water, aggravated by the injudiciousness and thoughtlessness of the unfortunate pleasure-seekers, who have too often to pay with their lives for the want of discretion in this very particular.

Should the journey have been made by boat, the

conditions already mentioned are modified. The change has been gradual, and the precautions referred to need not be so strictly enforced or so rigidly carried out.

A custom much to be found fault with is very common among our working class parents; we refer to the hurrying of children of tender years into the sea, and the immersion, without preparation of any kind, in an element to which they are entire strangers. Thus, although the parents may shiver when their feet only touch the water, they have no qualms of conscience about dipping the helpless and shrieking mite of humanity. It is painful to lookers-on, or those passing, to hear the agonising appeals and convulsive sputterings of the little one. No use remonstrating, the process must go on, because, forsooth, they are at the coast, and the child must enter the sea and have all the benefits, although the parents themselves might require days to make up their minds to endure a dip in the cold water. The bathing goes on, accompanied too often by sundry portions of corporal punishment, while the excited and yelling urchin, nearly beside itself with terror, clings to the arms, neck, or legs of the devoted parent. The almost uniform result of this line of procedure is that the child is nervous and far from being well for hours after; a restless and feverish night follows, the parents arrive at the conclusion that sea bathing is not for the child, and the injured and innocent little

bit of humanity has got a horror of the water that may take years to eradicate.

If too great precipitancy in going into cold sea water is to be condemned in grown up people, how much more should great caution be necessary in initiating the young to the sudden change.

A child should for its first dip in the sea be taken on a warm day, and under all the most favourable auspices. He should be allowed to go into the water for a very short time, and be dressed at once; or be allowed to go in with children of his own age; be encouraged to play at ducking and splashing, and when enjoying the play have him taken out, and the chances are that he will weary until the time comes for his next bathe, which he will in all likelihood enjoy; and these short immersions will be productive of much good, while the child's knowledge of the swimming movements will bring with it an acquaintance with the motions, the possession of which will add to the sense of safety experienced by the parents, whether the child is playing by the side of the water or enjoying the attractive pastime and exercise of boating in its many forms. Sea or salt water in a bath at home will be, perhaps, better for a very young child than dipping in the sea, unless in the arms of father or mother—and even then great care should be taken not to let the young one's mouth or nostrils be put under the surface, when there is the likelihood of his being put out of breath by taking a mouthful of

water instead of air. Such apparently small misadventures are not soon forgotten by the child, and the probability of their recurrence will always act as a deterrent to the desire for a bathe. Much care should also be taken to avoid chilling or shivering on the part of the child or boy after a dip. We once saw a parent calmly, deliberately, and with the greatest *sang froid*, carefully dry himself, put on all his things, chat with his neighbour, light his pipe, and even partake of some stimulant without once looking to his child, who, as far as his father was concerned, might have been sitting on the cold rocks or grass shivering all the time. Fortunately, however, some one had noticed the little one and had looked to his comfort. Parents, who are more than likely to be stronger than the children, should pay particular attention, so as to lessen any risk of catching cold while bathing, with the same regard to their families' health as they would do in the household and in the ordinary tubbing. Yet we find it to be very often the case that the care taken when under cover is too often relaxed when in the open air, and at a time when a little more, rather than less, ordinary care should be taken to avoid chills and colds.

CHAPTER III.

UNDULY PROLONGED IMMERSION.

THE usual feelings on entering water at a temperature of, say, 60° Fahr., are that the bather for a few seconds experiences a sensation of cold round the neck, shoulders, and back, and under the armpits, then ensues a feeling of warmth as the body seems to adapt itself to the difference of temperature between air and water; this comfortable feeling continues in ordinary circumstances for ten, fifteen, or twenty minutes, according to the strength or vitality of the bather; when this sensation of comfort or warmth wears off, it is succeeded by occasional and involuntary shiverings, then follows a more intense feeling of cold, the skin becomes pale, then blue, the eyes become bloodshot, the flesh under the skin seems to contract, involuntary and spasmodic muscular contractions take places about the cheeks, upper arms, and thighs. The blood leaves the surface and is driven inward. The fingers become powerless, and cannot be held straight or close together. The joints and articu-

lations all over the body become rigid and stiff. To all this succeeds a feeling of inactivity and langour, the breathing becomes irregular, the pulse slow and small. In a short time the pulse is further weakened, the heart's action becomes less, the stomach seems faint, and its region very cold—clayey cold, and a lessening of the whole animal heat takes place.

If one leaves the water at this juncture he can scarcely pull the one leg after the other, and these limbs seem too weak to support the weight of the body. Sudden muscular contractions, shiverings, chattering of the teeth now go on, followed by a feeling of numbness, giddiness, stupidity, debility, deafness, and difficulty of speech, which will last for hours if means be not taken to restore the body to its normal condition. The bather who has allowed himself to reach this stage, this effect of prolonged immersion, should be treated in much the same way, and quite as tenderly, as one who has been nearly drowned, with this difference, however, that there will be no occasion for any process affecting respiration. Care should be taken not to increase the temperature of the body too hurriedly, else effusion of blood to the head, or delirium, or congestion may be induced. The patient should be kept in a recumbent position, the head being at a slightly higher level than the rest of the body. He may be allowed to sleep, but not for any length of time, and warm blankets should be wrapped round the body.

Once shivering has decreased and the breathing has become more regular, and gasping and sobbing stopped, hot applications may be put to the feet, and every means now adopted to encourage sweating. The patient must be woke up from time to time, and a little warm beef-tea, or wine negus, or brandy and water given, in order to bring the stomach nearer to its normal condition.

To prevent as far as possible any evil effects, gentle aperients should be taken for two or three days following.

CHAPTER IV.

SWIMMING AS A SCIENCE.

AS a means of progression or locomotion proper, swimming has undergone very little improvement during its many years practice, nor has it, in our opinion, received that share of scientific study which, in proportion to its utility and usefulness, it is entitled.

It cannot be too much to expect that, when man's body can be made to support itself on the water by mere inflation of the lungs, which occupy in reality such a small portion of the whole system, it should also be within man's reach, endowed as he is far beyond any other animal, with vital and brain force, muscular power, and clear intellect, to move forward through water at a much faster rate than can in the present state of the art be attained.

It is at the present time considered good work to swim a mile in about thirty minutes; and this can only be accomplished under the most favourable circumstances. The swimmer must be in good "form," the water must be calm and without any opposing tide or current, and be of a moderate temperature.

Surely this state of matters in swimming pleads an urgency for some reform in the movements as they are at present applied. We cannot help thinking that there must be some law in mechanics which will obviate the expenditure of muscular force which is productive of such miserably poor results.

We submit that if the subject were gone into with but half the ardour which is spent on questions of less practical and really vital importance, by men of theoretical and mechanical acumen, the result would be the invention and introduction of some method, or methods, whereby the progression of the body through water at a speed far greater than our present comparatively slow rate would be gained.

An analysis of the motions of the limbs necessary to produce progression in the water, would be productive of results of not less public benefit than many sections of science and art, which from time to time occupy the attention and time of savants and learned societies.

Granted that water is a yielding *medium* and is a movable fulcrum, offering no solid support to limbs or body, compared with the fulcrum of *terra firma*. But, it is a question whether this very absence of solidity might not be the means of adding to the momentum of the body when in water, for water is resisting as well as non-resisting, everything in this connection depending on the power exerted and how put forth.

Man's body in water may be the fulcrum in itself, and the limbs the levers. In water, when power is applied, the impetus given to some bodies is carried further by momentum than upon land, unless with perfectly rounded or rolling objects. This can be set off as *per contra* to the absence in water of solidity sufficient to establish or form a fulcrum. Meantime, we await the discovery of a better method of swimming, which will only be made known when the art or science is made the subject of study, and we must just now acknowledge our helplessness and do our best to consider the movements as we do know them, and how best to apply them in the present state of the art.

CHAPTER V.

THE SWIMMING MASTER.

IT is a mistake to suppose that because a man is a good swimmer, and has been succesful in a number of aquatic competitions, he must on this account be a good teacher.

It is very common for us to hear claims put forth, even by old sailors or soldiers, that as they know how to swim they are also to be classed as teachers of the art. Many really good swimmers, who take a leading part in trials of skill in the art, and who are looked up to as leading lights, could not tell, and really do not know, why they travel so fast through the water, and are quite ignorant of the peculiarity of action which gives them such power over their rivals. We can point to quite a number of instances in proof of this assertion. If this is the case with professional swimmers, what must we say of the many who lay claim to be teachers, and whose own movements are completely the reverse of being correct, or in accordance with any rule, or recognised law govern-

ing the swimming motions, but whose very ignorance accounts not only for their own egotism, but is the cause of oft-repeated mistakes and distorted ideas of swimming and the movements pertaining thereto in others.

Neither can we expect that anyone, no matter how plausible a theorist he may be, will, without practical experience in his own person, of the motions of the limbs and the *finesse* and details of movements and positions of the body by given movements in the water, ever become even a moderately successful teacher. It is only by referring to one's own movements of limbs in their many fine details, along with watchful attention to the movements of others, and the results in different cases, along with one's own ideas as to cause and effect, that one can fully understand and sympathise with a pupil's difficulties, and be enabled to explain in detail the many little motions which go to perfection and correctness of movement.

To be a successful teacher of the art of swimming requires almost, if not quite, as much thought, application, hard work, and constant practice as almost any branch of education or science.

No matter how natural and easy the movements of swimming may seem to an individual, he cannot, without constant practice, develop the gift he may be supposed to possess; nor can he, after the development of this natural ability, impart the knowledge to others without study, experience, and perseverance.

To insure success as an instructor, it is essential that the teacher have a love in and for his work, and possess in the fullest degree the qualities of firmness, confidence, and above all, patience. He should sympathise with his pupils in their first efforts and sputterings, and be at all times far above almost the possibility of enjoying a laugh at their expense, no matter how ludicrous their motions may at any time appear to him.

He should make a study of the temperament of his pupils, whether they are nervous or excitable, or cool and collected, this he is sure to find will help him considerably, and his lessons will become of value and acceptance in proportion to the wisdom he displays in tempering the lesson to the habit and requirements of the pupil.

It is almost a duty incumbent on every swimming instructor to now and then, or, even better, to periodically go into the water to illustrate by practical demonstration the meaning of certain portions of his lessons. By so doing the instructions are sent home with a force which no verbal or written directions can ever be hoped to convey; at the same time confidence will be put in the utterances of the teacher, and in proportion to the proficiency exhibited in the water by the instructor, so will a love for grace and perfection of movement be engendered in the mind of the pupil.

No matter whether the master be blamed by the

envious, the ignorant, or the jealous for "showing off," the pupil will wish for, enjoy, and be benefited by the exhibition, and so far this is all the teacher should aspire to.

Unless this is done, one cannot by any means hope to excel as a teacher, nor will his instructions, no matter how well put, ever be hoped to reach any high standard of excellence unless what he says is from time to time strengthened by practical illustration.

We hope to see the day when the present empty and ignorant appellation of "Professor" will have a very different meaning; when self-styled professors will find their level in quite another walk of life, and when those who, at the present time would be ashamed to be styled professor, may by dint of close application, and a thorough knowledge of all in reference to the art, primarily and in its most advanced stages, be enabled to pass an examination which will make the title the very antipodes of what it is at the present time.

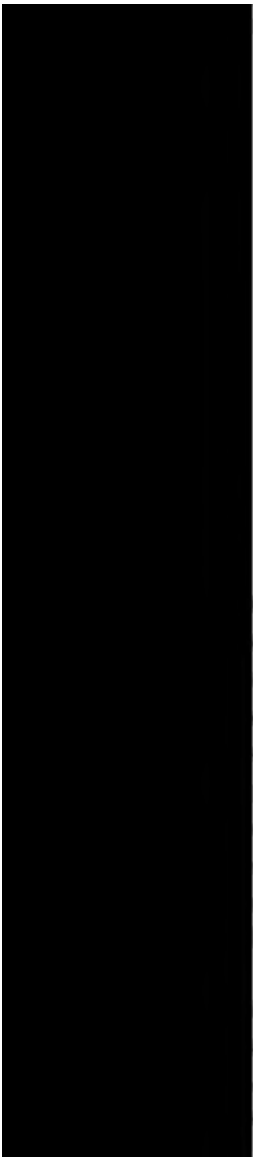
CHAPTER VI.

TEACHING APPARATUS.

SEVERAL appliances, having for their object the lessening of the difficulties experienced by pupils when learning to swim, as well as rendering less laborious the efforts of the instructor, have many times been introduced. Among the first of these inventions of which we have any definite description, is that of Lambert Cowell, patented in 1857. This was intended as a means of acquainting the tyro with the mechanical actions of the limbs before going into the water; and consisted of a small platform or table, from the corners of which projected rests for the legs and arms. These rests were jointed in such a way as to move with the limbs as the actions were being gone on with. This arrangement was a year later improved upon by the original inventor, who had it constructed so as to give more work to the legs and arms by causing them to push against sets of springs. This, we may presume, was intended to give the limbs and muscle as nearly as possible the same kind of work as when in the water.

In 1863 Mr. Cox, of Edinburgh, introduced in the Pitt-street Baths there, an iron grooved wheel and rail contrivance. A rope and belt depended from the wheel, and the progress forward was not interfered with. The learner swam round a prescribed space, and quite a number of pupils could be practising at the one time. Mr. H. Warner, of Rossall School, Fleetwood, in 1872, or the year following, invented and perfected a very neat and light apparatus which, from its very simplicity, recommends itself. It consists of an 11-guage wire stretched tightly, at almost any height we should say, above the surface of the water. Running on this wire is a V shaped groove wheel, about 6in. diameter; attached to, and hanging from the centre of this wheel is a strap, at the end of which is the sling or belt in which the pupil lies when receiving the lesson. As soon as the swimmer makes progress the wheel moves along the wire, and as there is a small swivel on the strap he can turn round and move backward and forward at pleasure.

In the year 1875 John S. Levett, then residing in Edinburgh, originated a small contrivance which was, when opened up, like a small square framework; accross this frame or lattice-like arrangement, the swimmer was to lie face downward, when in this position an india rubber air bag lay under the chin, and supported the head and upper part of the body, while along the side, down near the hips, were a bag



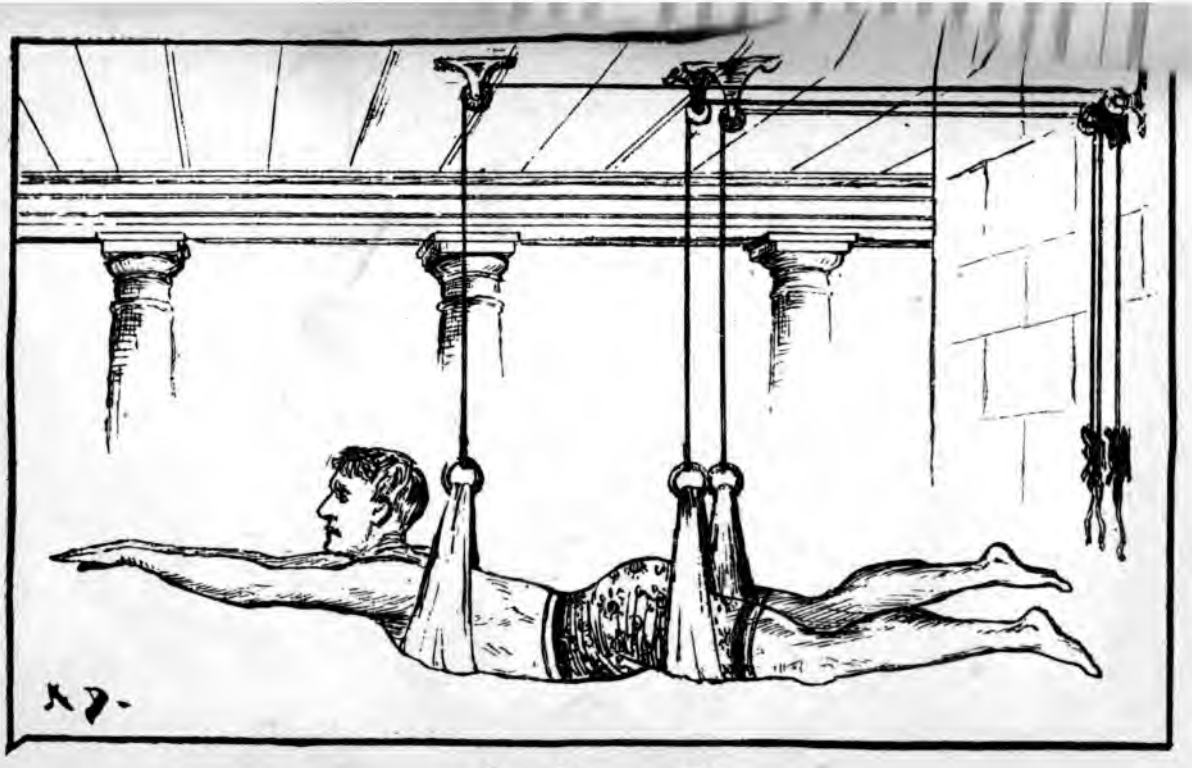


PLATE I. (see page 30.)

on each side, and these afforded support to the lower body and legs. The bags could be easily detached and the air let out, and the framework, by means of little pins and eyes, could be put together, and took up very little, if any more room than an ordinary umbrella. The invention had its recommendations, but as poor Levett was himself drowned a year later on, when exhibiting the apparatus in the sea at Blackpool, no one took any further interest in it, and with the exception of one which we have beside us, we have not seen any since the unfortunate accident to the inventor, which happened in the month of August, 1876.

Having for many years experienced as a teacher the fatiguing effects of the constant use of the stool and ordinary teaching pole, and the impossibility of giving instructions to a large number of pupils in a prescribed time, we, in 1876, devised a simple method whereby all the motions in swimming can be imparted to the pupil, and his limbs exercised and accustomed to all the movements before going into the water. We have also had some lines and pulleys fitted up over the water, by which almost any number of pupils have their lesson drill-fashion while in the bath.

The former contrivance is shewn on plate II. and consists of three small 3in. pulleys, which are fixed into the ceiling or beam, or joisting of any room. Lines move in the grooved wheels of these pulleys,

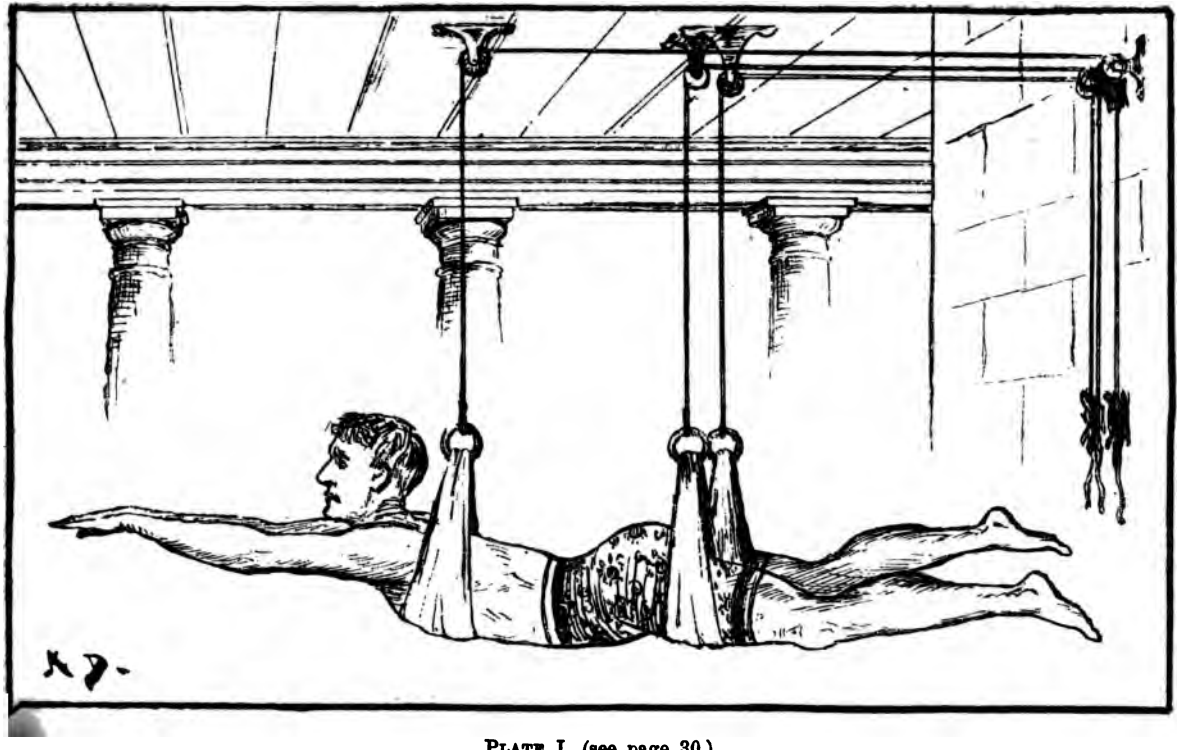


PLATE I. (see page 30.)

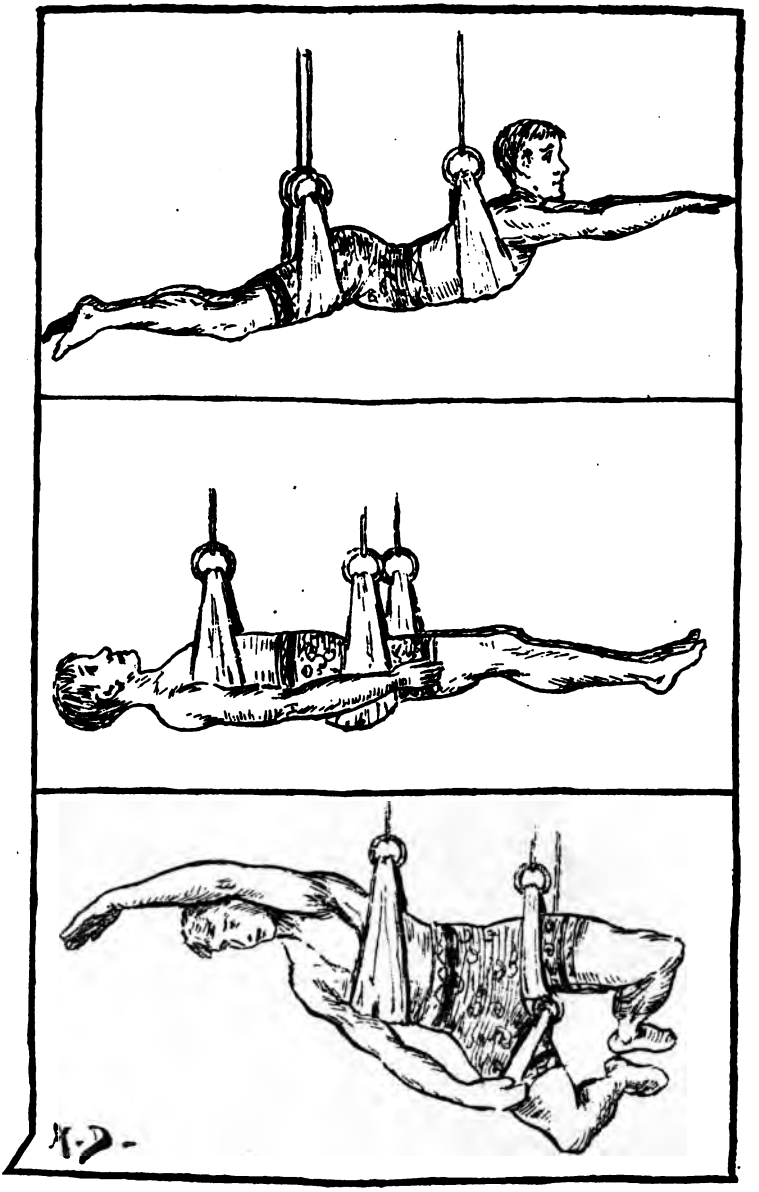


PLATE II. (see page 31.)

and pass along the ceiling and through other guiding pulleys on the walls, and the lines terminate at a height that may vary according to the inclination of the teacher, who should have them handy for his own use.

Depending from the end of one line is an ordinary flat or teaching belt, on which the chest rests. From the other two lines are small belts or straps for the legs. The belts are all adjusted while the pupil stands on the floor, and when ready, the teacher, by adjusting the lines, raises the pupil off his feet and he is in mid air, and can be supported in almost any position.

We find that by using this contrivance the pupil obtains a more correct idea of the movements and positions of the body, than can be given when lying in the water.

The advanced strokes can be easier understood by means of the arrangement, and their meaning and uses more easily explained in detail. The positions of head, neck, arms, body, and legs in nearly every branch of the art, can be more thoroughly imparted and made plain than when the pupil is lying in the water, it may be shivering, and his head or ears going under the surface from time to time.

With life-size diagrams, explanatory of the positions of the limbs, hanging round the room, the learner can soon become conversant with all that is necessary in the earlier stages, and so almost a

double lesson is enjoyed, and his progress in the art is easier and quicker than is possible in the ordinary methods.

It can scarcely be expected that one will acquire the art by this means alone. It is intended as a valuable accessory to the usual swimming lesson.

We have found it to be of much and marked benefit in the advanced stages of swimming, when sometimes a lesson or two was found quite sufficient to convey instructions to those who were already moderately good swimmers with the plain strokes.

After receiving the initiatory lesson in the teaching room, the pupil or pupils proceed to the bath, and there practise the movements in the element for which they are intended.

The contrivances over the bath are similar to those in the room, but one belt serves to support the body in the water.

There may be three, or five, or seven, or indeed any number of these lines all under the control of the teacher, and any one can be raised or depressed at will. All spring from one centre, and each line has an independent hook for fastening.

The pupil on entering the water adjusts the belt round the chest by passing arms and head through, and as soon as it is in its place the line is lowered or raised to the requisite height. When the class are all supported thus, they put themselves into position and the teacher proceeds with the lesson, calling out his

instructions. His hands are disengaged, he can walk along the platform or pathway and correct any wrong movement by calling the individual pupil's attention to it. Progression forward when the motions are being acquired is altogether unnecessary. The teacher's eye will at once discover when the movements are being correctly performed by any member of the class, and after some little practice to perfect the pupil, he will, of course, be allowed to try without the support.

By either or both of these appliances the learner may practise without a teacher. No patent right of any description has been secured for either of these, and we are gratified to know that they are being fitted up in quite a number of public and private baths throughout the country, and shall be pleased to know that they are being altered or improved in any way.

We believe one or two teachers have expressed their disapproval of the arrangement, but it is so far satisfactory to know that those who have done so have never tested in any way the utility of the contrivance, have never had any large number of pupils receiving lessons at one time, and so have not had occasion to economise time and effort.

CHAPTER VII.

PLAIN STROKE OR BREAST SWIMMING.

MAN, compared with the lower land animals, labours under great disadvantages when in the water. Birds and quadrupeds find themselves supported and moved along in the water by motions of their limbs similar to those employed by them to facilitate locomotion when on land. Man, to be sure, can support himself in the water by movements of the feet and legs similar to those made by him when walking, but his onward progress is very slow.

In order therefore to attain motion forward, along with sustaining power, we must lie prone on the water, quite opposite to our ordinary upright posture.

Displacement tells considerably in our favour when lying thus in the water, that part of the human body which is immersed displacing a quantity of water heavier than itself.

Experiments made in this direction by Liebig demonstrate the fact that, as a rule, with lungs even only partially inflated, man's body is ten times lighter than fresh and about eleven times lighter than salt

water, and it is only by emptying the lungs and allowing the chest to be contracted, or holding some of our limbs above the surface, that the body can be made to sink itself.

The head and lower limbs are the heaviest or densest portions of the body, and the mid-body, by reason of the presence of diaphragm and lungs, which act as bladders or air supporters, has the floating power, and is, while one is lying in or on water, for the time being the centre of gravity, and the lifting or depressing of either or both of the two extremes balances or regulates the position of the whole mass, body and legs.

In swimming, every movement of the limbs should be made to propel the body, very little effort indeed, if any at all, is required to support one. While there is forward motion the body will not sink, and when in the water, as it is easier to push than to pull it through or along, the greater portion of the force used should be obtained from the leg movements. The legs are stronger than the arms, therefore it is economical to obtain all the power possible from the lower limbs.

With learners and self-taught swimmers the inclination is to use the arms with all the power possible, and thus *pull* the body along.

Another mistaken idea is that the propelling part of the kick is obtained from the soles of the feet; these mistakes to a great extent account for the long-

continued and too often unsuccessful efforts made by those who wish to teach themselves.

The true motions in swimming may be described as three with arms and three with legs, and these, although in some respects performed simultaneously, are in another sense quite opposite, the movements with the arms being from the inside and outward, while from the legs the propulsion is obtained from the outside and inward.

When the legs are apart the hands are together in front at arm's length from the chest, and at what may be termed the first motion, while, when the legs are close together at the second part of the movement the arms are stretched wide apart.

The two sets of limbs (arms and legs) are only at one part of the stroke in positions similar, at this portion of the movement the hands are met under the chin and close to the chest, while the feet are also close to the body and together, the heels touching, the toes pointing outward to the side, and the knees bent wide apart.

THE ARM STROKE.—The carrying of the hands outward and round in quarter circles, with the palms facing outward, is the positive or propelling part of the arm stroke, and, in order to secure its full force, the hands should be kept at a level of about two, certainly not more than three, inches under the surface of the water.

The hands must not on any account be depressed or

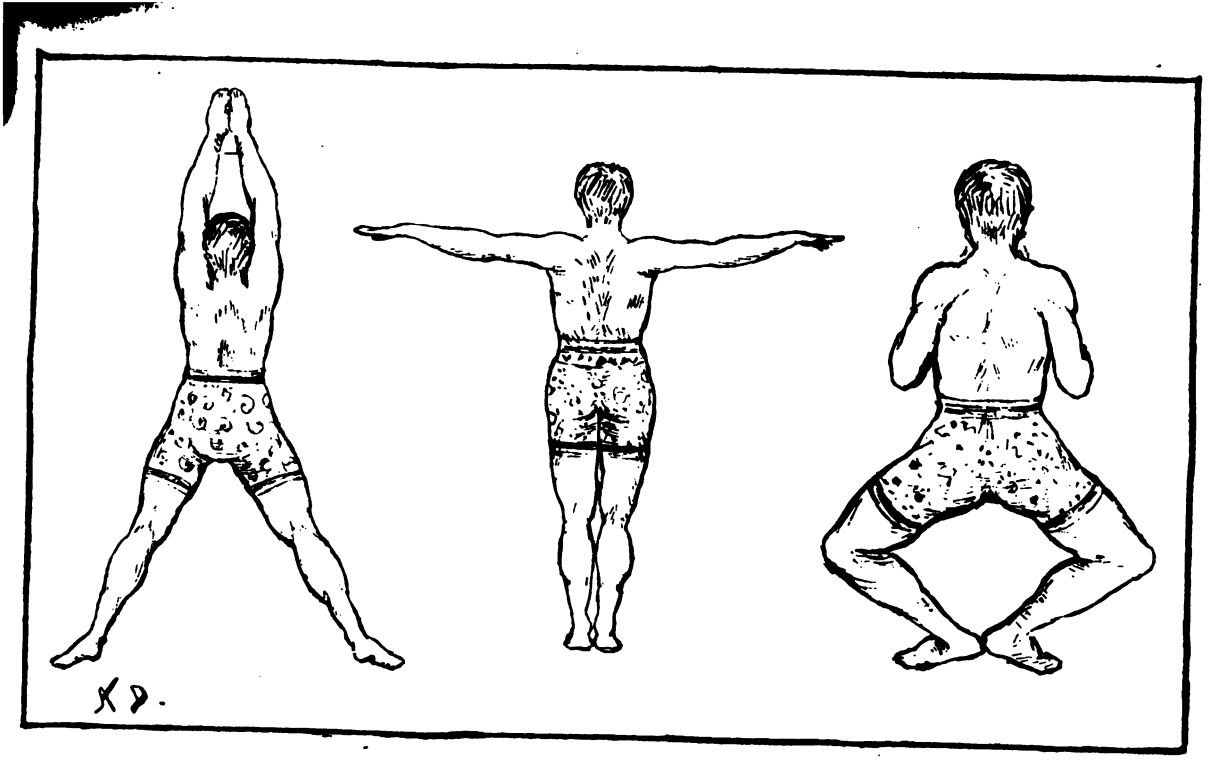


PLATE III. (see pages 36 and 37.)

pushed downward, or the tendency will be to lift the body perpendicularly, and all power, as before said, is required to propel it through the water horizontally.

We have over and over again come across lessons in books, and at this part of the stroke the reader is instructed to carry the hands round until they come as low down as the hips. Such a prolongation of the positive movement of the hands is absurd. The arms must not come further round than to that point when back, shoulders, arms, and hands are in one straight line across. To assist in making this plain, each hand, from its parting in front until it finishes the positive motion, describes a *quarter*, not half a circle. The whole of the line described by both hands at this part is just half a circle or arch, the head being the centre and the arms the trainers.

The "recovery," or returning of the hands to the front of the chest, where they meet, is a negative movement, therefore all friction and surface must, as far as possible, be reduced to a minimum. This is attained by bending the wrists and drooping the hands until the fingers point to the bottom of the water, the backs of the hands are to the front, the thumbs inward, and the hands are thus returned to the requisite position sideways.

The stretching out of the hands and arms in front is also negative or non-propelling, and it is immaterial whether the palms of the hands are together or laid out flat. They, must, however, be put as far in front

as one can stretch, but it need not be done with any suddenness or with any exercise of strength at all. While the hands are thus acting as a cutwater, opening a way as it were for the passage of the body, help will be afforded them by narrowing the shoulders, but this can only be done at this one particular part of the movement.

THE LEG MOVEMENTS.—Much misapprehension prevails relative to the movements of the legs in swimming, a general belief being that the sudden and powerful kicking out of the feet in such a way as to let the soles strike the water is the movement that aids most directly to propulsion, while in reality this movement is as nearly as possibly can be, if it is not completely and thoroughly, a negative, or non-propelling power.

The propelling motion is the one following, and in order to give it its proper effect the feet must be stretched wide apart and straight to opposite sides, but not suddenly or with power. The wider the feet are stretched from each other the better, and it is done by pointing the toes sideways outward, the toes cleaving a passage for the rest of the foot. This will be known as number one leg movement. Number two of the leg movements is the true propelling power, and the motion to which all effort should be more specially directed. Once the legs are put out wide they are stiffened, every muscle is set, and with all the strength one can command they

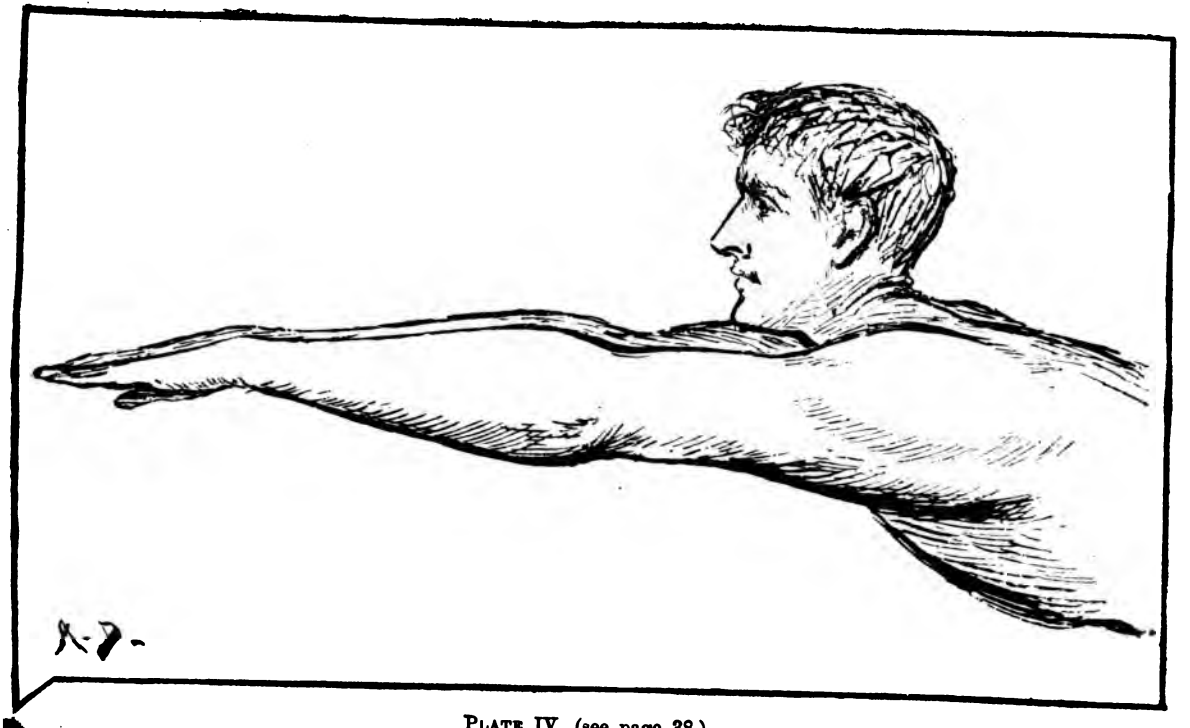


PLATE IV. (see page 38.)

are brought firmly and stiffly together. A strong effort is made to grasp, as it were, the water the whole length of the legs downward, the more important and telling parts being between the knees, the ankles, and along the inside of the feet to the toes. The stronger the legs are closed at this part of the stroke the greater in proportion will be the impetus forward; knees, ankles, and toes of the opposite feet and legs are touching each other at the finish of this movement. Now the legs are together, the feet in the third part of the motions should be pointed to the back while the knees are turned outward, the heels touching as the feet are pulled up to the body. As soon as the feet are quite close to the body, the toes are turned out sideways by a slight ankle movement, and now the legs and feet are ready for renewing the stroke. There must be no kicking downward nor straight backward. If the kick is performed downward, the same objection as that made to the downward arm stroke holds good.

Any effort in the direction of hitching the body tends to sink it and to tire the swimmer. No hitching, no matter how well done, can assist in the slightest possible way to increase speed. The head should lie well on the water, its weight is thereby lessened, and having less weight to carry one must move more easily, quickly, and gracefully through the water.

CHAPTER VIII.

IMPROVED METHODS—THE SIDE STROKE.

NEAT, natural, and graceful as it may seem, with all its recommendations of age, "use and wont," &c., the breast stroke, so far as its utility, even in ordinary practice, independent of speed, is concerned, will soon be, we opine, almost a thing of the past.

Many swimmers cling—foolishly, we cannot help thinking, to the idea that the ordinary breast stroke must continue to be the A B C of swimming, and consider it an impossibility to altogether discard the "old stroke." We differ from such conclusions, for the world, in spite of old associations, has a knack of being very utilitarian, and altogether of a practical, rather than sentimental, turn of mind. We find in every department of life and business that old-fashioned notions must, no matter how great their antiquity, make way for progress and improvement, and we fail to understand that the same rule which guides and actuates ordinary society will be departed from by the numerous class who practice and make a *study* of the natatorial art in its varied phases.

If we can prove that, by means of a new or improved movement in swimming, the body can be impelled faster through the water than by the old method ; if, while going faster, there is greater economy of effort, and that it can be kept up for almost any distance, then we hold that the remark made at the opening of this chapter need not be looked upon as utopian in any sense of the word.

We have practically proven that pupils can be taught side swimming without acquiring the breast stroke at all, having on several occasions taught learners this improved movement without any preliminary or plain stroke lessons.

True, one may, on coming to the surface, lie on the chest in order to look about him, but lying flat on the water is quite as easy when using the hands in side swimming movements as when spreading them apart, as in the breast stroke ; and, no matter whether one is near the shore or a distance from it, he will find it more easily, and certainly more expeditiously, reached by swimming on the side than by the old stroke.

It is just possible—nay, it is a fact—that as this new, or comparatively new, stroke has, since its introduction, been closely identified with competitions, there may on that account be some prejudice against its general adoption by those who do not take any great interest in these trials of skill. This is not as it should be : such a consideration ought rather,

we think, to weigh as an argument, and a thoroughly practical one, in its favour.

If amateurs and professionals find it expedient to discard the breast stroke, and use the new movement in their matches at all distances from fifty yards to two miles and five miles, it must stand to reason that these swimmers adopt it for other reasons than that of fancy. They have adopted the stroke because it is the fastest. Then, if it is the fastest for all these distances, it is economical; and, if it is fastest and affords a saving of strength for miles at a time, surely it is worthy of general adoption. And, having these recommendations, why, we ask, should anyone who wishes to swim well adhere to the old slow stroke and delay acquiring the most improved style?—for it must be looked at in the light of an improvement in swimming.

It is being continually demonstrated that the side swimmer can go any distance in less time and with the exercise of little more than half the effort put forth by the person who swims on the chest.

A glance at the movements and positions of the body and limbs in both styles will, we think, serve to show, that to recommend the old stroke to the prejudice of the new is, to say the least of it, a mistake.

The body laid flat on the water offers the width of its broadest part as a resisting surface. What would we say of a ship built in such a way as to have her

broadest part first? We cannot help our width of body, but we have devised means whereby the bulk is reduced. Three-fourths of the whole of the movements of limbs in breast swimming are expended not so much to propel the body as to get them into the necessary position for the progressive movement. During part of the arm movements the hands are pushing outward or pressing to a centre, this centre being the body itself, and this waste of effort takes place at what is understood to be the beginning of the motion which carries the body along.

Another important matter for consideration is the almost complete stop which takes place between the strokes, consequent on the total suspension, for a time, of propelling action at the time when the limbs are being put in readiness for the positive movement. It will be apparent from these remarks that there is a loss of power and of time in again setting the body in motion on the cessation of all, or nearly all, momentum.

Even with the most careful efforts to reduce friction by sideway movements in recovery, there is an amount of slip which implies of course another waste of power and time.

With the side strokes these drawbacks are to a large extent obviated, or reduced to a minimum.

Instead of the width of the chest, the resisting surface is reduced to the thickness of the shoulder, and this is further lessened by the contraction of

muscles as the foremost or cutwater hand is stretched to the front.

. There is little or no loss of momentum; for, when the one hand is at the negative, the other is performing the positive part of the stroke. The movements of the legs are freer; they can be sent wider apart, which means a correspondingly greater impetus forward at each kick or "clip." In point of fact, the movements of the legs are more natural in side than in breast swimming. The weight of the head is more reduced in this style of swimming, as it can more conveniently be laid well into the water, and this is of much more importance than might at the first glance be apparent.

We submit, therefore, that for all ordinary and extraordinary purposes to which swimming is applied, in proceeding to save life, when speed is a consideration, traversing long distances, and when moving in the water for health and pleasure, this later method of propulsion has in every respect a decided advantage over the breast stroke.

Dr. J. B. Pettigrew, in his excellent work "Animal Locomotion," says: "Swimming by the side stroke is, on the whole, the most useful, graceful, and effective yet devised. It enables the swimmer to make headway against wind, wave, and tide in quite a remarkable manner. Indeed, a dexterous side-stroke swimmer can make progress when a powerful breast swimmer would be driven back." We should,

therefore, everything considered, impress upon all swimmers the importance and necessity of acquiring and keeping in practice the side stroke. It will be time enough to give up the practice when something better can be substituted, or when it has been demonstrated to be no faster, or easier, or more pleasant than its forerunner.

INSTRUCTIONS.—All authorities on the subject who have, up till now, appeared in print, have advocated that the pupil lie on the left side. Thevenot, the French writer, in his book "done into English" nearly a hundred years ago, assumes in his instructions that the learner is lying on his left side. Steedman also advocates this same inclination In page 106 of his valuable manual he says: "The upper arm in the side stroke is the one which has the most work to do. It is better therefore to place the stronger arm (generally the right) in that position."

Harry Gurr, in his book "The Art of Swimming," tells us that "It matters not which side you swim on, the plan of proceeding being of course the same."

Dr. Pettigrew, afore-mentioned, also assumes in describing the motions that the swimmer lies on the left side.

Notwithstanding all that has been said or written on this part of the subject, our own experience is that for several reasons, and, as a rule, our best exponents of the art prefer to lie on the right side. The movements of the limbs, especially the legs,

seem freer and more natural; and there can be no doubt that the left side being uppermost, the action of the heart (that important governor) having no weight of even any part of the viscera lying on or against it, will be less impeded, and must therefore be freer, and the importance of freedom in the heart's action cannot be over estimated. Swimmers who lie on the left side experience a species of palpitation in the region of the heart when exerting themselves in the course of a race. Lying on the left side seems also to induce an undue accumulation of flatus, and in the course of a race or in fast swimming this, it can be easily understood, is a source of much annoyance and discomfort.

The right hand also works with greater power in its action downward through the water, while the left seems to be specially adapted to the work assigned to it when it is uppermost.

It would be hard work indeed and would be useless to endeavour to persuade those who swim on the right side that they are in error, and we incline to think that they would have the best side of the argument—if not in theory, they would by practical demonstration.

We therefore take it for granted that the pupil is lying with the right side downward, and on this assumption proceed with our lesson.

The first thing to be done in commencing this stroke is to allow the head to lie well forward: it

must lie so in the water as to allow of its weight being borne, not by any muscular exertion of either neck or shoulder, but by the element in which it is submerged. The crown of the head, not the top nor forehead, meets the water first, and the neck is turned in such a position as to leave the chin lying almost on the uppermost shoulder when the hand is brought to the front. The neck is held stiff, but not so rigid as to induce undue contraction of muscles or cramp. Never mind the fact that the mouth is under water; at part of stroke, as mentioned anon, the lips will be brought clear of the water, or at least sufficiently clear to allow of a breath being taken.

The movements of the right arm and hand partake partially of the perpendicular, the horizontal, and the vertical. The right hand is put straight in a line with, and in advance of its own shoulder level with the undermost side of the head, the back of the hand being upward, the palm downward. Once it has been stretched as far as the arm can reach in front, it is scooped downward and stroked lengthways; and this is the propelling part of that movement. As soon as this is accomplished, the hand is returned along the side, with the back of the wrist in advance, until half way between the end of the stroke and the shoulder, when the hand is advanced with the fingers pointing once more in front.

While the right hand has been pushed out in advance of the head, the left or uppermost hand is

being carried strongly along the front of the body in the direction of the legs, the palm of the hand pressing against the water, the wrist being bent so as to put the hand at right angles with the fore-arm, the fingers being, of course, turned outward from the body; the stroke is finished at the top of the left hip. There will be no occasion for any bending of the elbow of this arm at all.

Next practise the movements of legs, beginning with those of the left. Bring the left knee as far up in front of the body as possible, then send the foot straight out in front of, and at right angles to the body. Next put the foot in a line with the front of the leg, and, by a strong muscular movement, bring it round to a line with the body where it will meet the other.

While this is being done, the right or lower leg is stretched as far in the direction of, and beyond the back as can be, and is then by a strong movement brought down to meet the other, the whole of the front and inner part of the leg and top of the foot being the resisting surface. After the all-important movement—that of closing the legs—has been performed, they are, by a motion as nearly as can be the same as with the ordinary plain stroke, returned upward to the body, the heels touching, the knees apart, the toes of the left foot pointing straight in front, those of the right pointing partly in the direction of the back and partly downward.

When the right hand is being scooped downward, one may inhale, the exhalations being all done while the mouth is under water.

Roll the body as little as possible ; while arms and legs are working the body should be quiet.

This stroke requires long and steady practice. The greater the perfection and grace of movement attainable by its means, so much easier will it be to acquire the still further advanced stroke described in the next chapter.

CHAPTER IX.

IMPROVED METHODS—OVERHAND SWIMMING.

THE writer is convinced by theoretical study, as well as by practical experience, that for all purposes the overhand stroke is, when properly mastered, beyond all comparison with any style of swimming the most useful and easy.

It must always be a matter for regret, however, that quite a number of young swimmers spoil the stroke in their desire and hurry to take part in races and in their ambition to be looked upon as exponents of the most advanced type.

By reason of the handicap system, these indifferent swimmers are encouraged to enter against fast men before they have mastered the details of the stroke or even acquired a style; and so onlookers are apt to form an erroneous opinion of the movements which, as exhibited by imperfect aspirants, lack all appearance and power; and all such imperfections do not contribute to, but on the contrary detract from gracefulness and pace.

Would it not be well for committees and clubs and individuals in charge of competitions, to reserve to themselves the power of refusing entries unless from swimmers whose style is at least presentable, in accordance with some recognised standard of excellence, to put in an appearance in any competition of importance, or limit the starts, so that in competitions the swimmers would be more classified, and the better men would be spared the indignity of having to strive, in the face of odds, against those so very much their inferiors, but who by reason of the long handicap system need not train nor practise in order to have a chance in a swimming match? We know of many indifferent swimmers who can exhibit a beautiful supply of prizes won with long starts in handicap races.

Such an arrangement would help to encourage perfection of style and improvements in the art, tending to speed, length of reach, and uniformity of movement, and we think that, until some such restriction is put on the entrants to races, we so longer retard the development and progress of the art, which can only be brought to a standard of high excellence by this among other means.

Quite a number of swimmers lay claim to having been the first to use this means of moving through the yielding element.

Harry Gurr, the "Pocket Hercules," as he was termed on account of his short stature, healthy red

skin, fair hair, and neat physique, and Harry Gardner, now of Woolwich, were the first who, by means of lifting one hand out of the water, carrying it in the air and beyond the head, won any races of importance; and these clever exponents of the art deserve every praise for their efforts and perseverance in introducing what was, at one time, looked upon as a style peculiar to, and only used by themselves.

Soon, however, after these swimmers had pulled off several important prizes, it appeared evident to those who adhered to the side stroke that there was more in the innovation than was at first apparent; and, after repeated trials and private rehearsals, those who had at one time laughed at the new movement considered it not beneath their dignity to follow in the wake of the swimmers just named, and adopt the overhand motions.

W. Woodbridge, swimming-master of the Victoria Park lake, was, we think, the first teacher of this mode of swimming, and to him is due a large meed of praise for his efforts in this direction.

Up till the appearance in London of John Baptiste Johnson in 1871, this overhand stroke had been only practised with a short reach, the uppermost hand dipping close to the head, and with the whole arm bent almost like a hoop.

Until the brothers Peter and John B. Johnson, by *careful* work, close application, and praiseworthy

See page 54.

See pages 48 and 53.

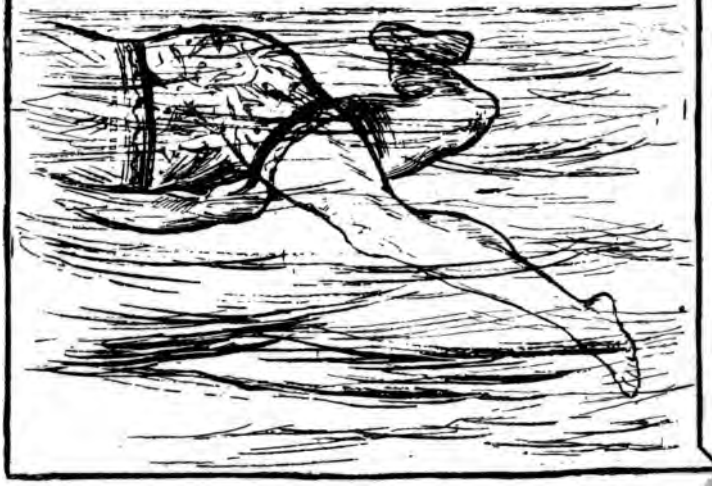


PLATE V.

determination to excel, further improved the overhand movement, it had not reached anything like popularity. The advent of the redoubtable "J. B." in his trials with the best men London, or in fact the world, could bring forward, proved beyond any lingering doubt the superiority of the lengthened reach with the uppermost hand and arm above the surface; and since the year mentioned, the improvements made and practised by the brothers Johnson have been adopted by the swimming world as the greatest development which has yet been attained in the history of the art.

INSTRUCTIONS.—As with the side stroke, the head lies well forward into the water, the body, legs, and feet being in a straight line, lying level and close to the surface.

The movements of legs and undermost hand and arm are precisely the same as in the side stroke, the only difference consisting altogether in the motions of the uppermost or left arm. Instead of bringing the left hand upward along the body and through the water, after delivering the stroke, or in the negative part of the movement, it is, as soon as the positive part of the stroke has been finished, lifted out of the water and carried along in the air as far as it can reach beyond the head and in a line with the front of the face. This is accomplished by elevating the elbow sufficiently high to lift the hand, which is by a movement or slackening of the wrist allowed to

droop until the fingers nearly, but do not quite, touch the surface; with the hand in this drooping position it is carried along at the same distance above the water until it reaches the front of the head, when the hand is put in a line with the arm and stretched out to its greatest extent in a line with the face and beyond the head. It is then put into the water and pulled through it with all the force at one's command in the positive or propelling movement. The lifting of the hand out of the water preparatory to carrying it in the air should be done quietly and gracefully, and carried along as before described, *not swung* round as if the hand were describing an arch, or a half circle with the shoulder as the centre or pivot, neither should the hand be hurried along through the air, but carried slowly, gracefully, and evenly to the dipping point.

The legs are timed to move with the uppermost arm, as in the side stroke movement.

As the weight of the hand and arm that are raised above the surface is increased by being in the air, so is the head lying deeper in the water than with the side stroke, when both hands are all the time under the surface. This, although causing a slight inconvenience when one adopts the overhand for the first time, is a decided advantage, as the body from head to feet must be more in a level and straight line, and the whole mass is moving evenly forward, instead of losing any power by going to the right or left, or from *top downward*, or *vice versa*.

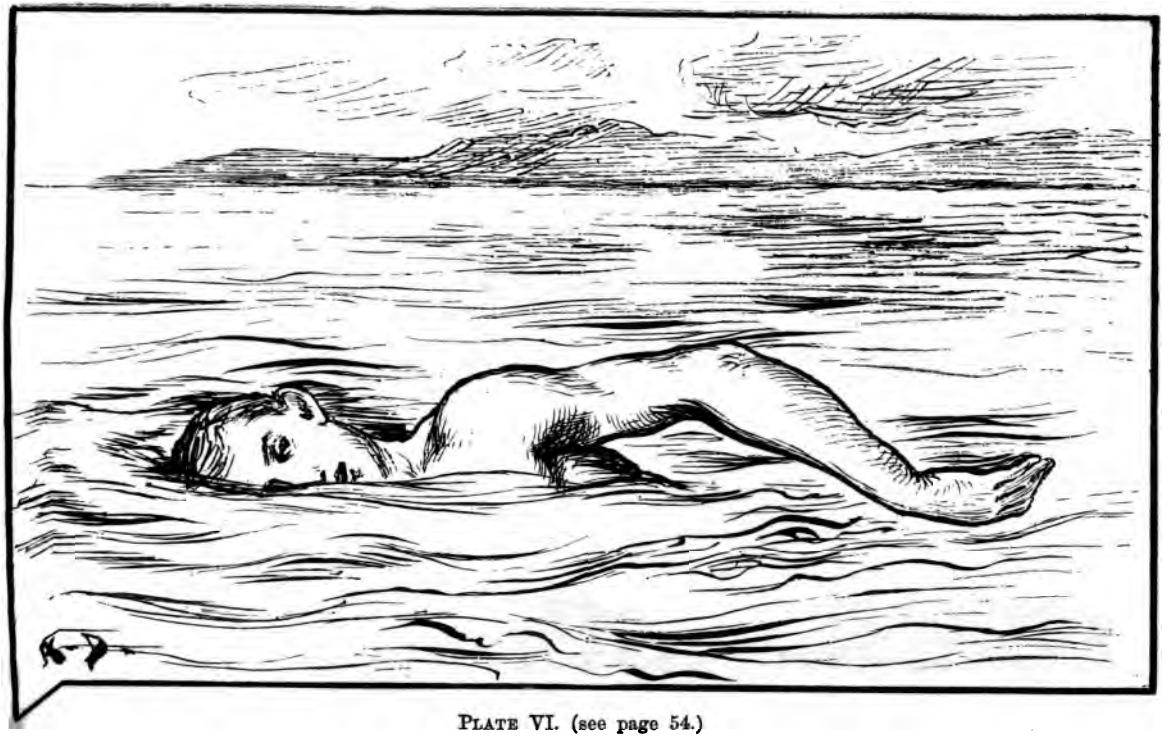


PLATE VI. (see page 54.)

CHAPTER X.

THE BATH AND ITS AMENITIES.

" E'en from the body's purity the mind
Receives a secret sympathetic aid."

THOMSON'S SEASONS.

IT will not, we think, be gainsayed that the swimming bath serves many a good and useful purpose.

Independent of its utility as the direct means of acquiring and practising an art so much to be commended, it is a great sanitary, social, and, we hold, moral reformer.

The bather, on an early summer morning, or in the cool of an evening, enjoys, when at the side of the water, the company of his fellow-bathers unfettered and unhampered by the usual and oft-times too stiff formalities of ordinary and everyday life.

It is to the operative an all-important soother after a hard day's toil; the bathe cools and braces him; his flagging energy and relaxed muscular system are renewed, and, for the charge he has paid for admission to the bath, he feels that he has had value far beyond any ordinary mercantile transaction.

The tired thinker must experience feelings of a

similar kind—sometimes, we believe, to even a greater extent. The unstrung nerves, weakened brain power, and all feeling of lassitude become, after the dip, things of the past. Surely, as one is thus refreshed, cleaned, strengthened, and renewed, he must feel convinced that the bath is a most important auxiliary to that consummation so devoutly to be wished for, namely, a sound mind in a sound body.

The bathe indulged in on a Sunday morning before breakfast, must bring to one's reasoning faculties that calmness and tranquillity so essential to the proper and rational enjoyment of the day of rest.

It is an oft-repeated phrase in connection with the subject of bathing that "cleanliness is indeed next to Godliness." If the sentence is to pass into a truism, should not every bather make it a rule to honour the bath building with respect, or, at least, to prevent its being made a scene of disorder, dirt, or horseplay?

Still, day by day in almost every bath in the country there is to be heard on entering a sometimes deafening din of splashing, shouting, and unexplainable and indescribable noises. This is generally the careless, thoughtless, and indifferent play of the untutored boy and youth, who, in too many instances, seem to regard the bath hall as little better or worse than a romping playground.

This unseemly noise and unruliness of conduct on the part of the unthinking is oft-times, and with *good reason too,* adduced as a principal cause for the

enforced absence of the more respectable and orderly-inclined from what would otherwise be to them a source of welcome and much-to-be-sought-after enjoyment.

This is not as it should or might be. In a few first-class baths in some parts of the country and in the *Bads* of Germany the decorum and dignity of the place are preserved and maintained by the bathers themselves resenting in each other any breach of order and decorum, and everyone enjoys himself quite as full as, and to a greater extent than by roughness, disorder, or unlimited freedom.

Another habit much to be deplored and condemned is that of expectorating in the bath hall or bath-room. No matter whether there be spittoons placed at intervals round the bath or not, they should be seldom or never required: their use will always be a source of annoyance and disgust to any one of cleanly habits or inclination. Every person who enters the place for bathing or swimming purposes should make it a rule and a duty to rinse the mouth, gargle the throat, and cleanse the nostrils and air passages before going into the water at all, and this can be done in any wash hand basin.

Attention paid to these apparently small, but really important matters, would greatly add to one's own comfort when in the water, and to the amenities and cleanliness of the place, and at the same time show a deference and respect to the feelings of one's fellow-bathers — his "Companions of the Bath." One

seldom thinks of spitting on the floor of a church, or hall, or theatre—a person of cleanly habit will not even be guilty of expectorating on the street; still, it seems to some people to be not at all out of place in a bath, while it, of all places, should be thoroughly clean and fresh. But it cannot be so if the bathers are guilty of, let us call it want of thought, in this and a few other minor respects.

Ladies, we have times without number noticed, seldom or never offend in this way. We have for years had large classes of ladies in the water at a time, and no spittoon in the place, nor was such a thing ever asked for, or its desirability suggested.

We think the matter only requires to be mentioned, and the evil, if not immediately remedied, will at least be much lessened; and if so, the pleasures, the enjoyments, and the cleanly healthfulness of the bath will be greatly enhanced, and everyone's comfort increased, without restraint being imposed on or experienced by any frequenter.

Those in charge of bathing establishments will have, as a matter of course, their obligations to fulfil, and part of these will be the bestowal of attention to the ventilation and cleanliness of the place or places under their charge, and the maintenance of order and decorum.

Water is a great radiator; therefore, if the temperature is high, this, along with the heat of the sun's rays through a glass roof in summer time, and the *exhalations* from the bathers' bodies, will make the *atmosphere* of a swimming bath hot and close.

In the warm days of summer the windows of roof and all openings that are above the height of ten or twelve feet from the floor-level should be opened several times in the course of the day so as to admit a plentiful supply of fresh air; and, if at all possible, a complete change of atmosphere. All the pathways should be repeatedly washed down with clean cold water, not merely lifted out of the bath and thrown on by pails, but applied by means of a hose, and with some force; the pressure of this water in the air before striking the floor at all adds to the freshness and purity of the whole place.

Why should not at least part of the roofs of our swimming baths be movable by small wheels in narrow grooves, or by screw appliances, and so be easily opened up, not for an hour or two at a time, but for days and weeks in the middle of summer? If that part of the roof immediately over the water were open, and the dressing boxes or rooms covered, even heavy showers of rain would have no disadvantages; while numbers of those who care only for open air bathing would take advantage of baths so constructed and arranged.

We offer the suggestion for what it may be worth, and we consider it no extraordinary stretch of the imagination to suppose we may yet see the idea put into practical shape, and be carried out with even greater elaboration than can with the present order of things be even hinted at.

CHAPTER XI.

PLUNGING.

PLUNGING was first introduced and practised as a neat and efficient means of improving the start at swimming matches.

When well executed it gives the adept an advantage of no small account at the beginning of a race, and carries him clear of crowding and hustling and their attendant consequences and disadvantages, which are so often the source of annoyance and hard work immediately after the word "go" has escaped the lips of the starter.

The plunge is such a graceful performance that it continues to grow in popularity day by day. So much so, in fact, that prizes are now offered for excellency and perfection in its accomplishment, and it is being looked upon and recognised as quite a branch of the art.

Plunging must not be confounded with diving, for, beyond the fact that both are methods of entering the water, there is no similarity. Diving may be *looked upon* as the active muscular movements of

a person under water. In plunging there are no motions of limbs or muscles under the surface. The impetus given by means of the spring when leaving the board, or bank, or rock, propels the body forward, and all the time the limbs and muscles are quiescent and rigid.

Plunging is seen at its best when performed from a height of from three to five feet above the surface of the water.

The *modus operandi* being in detail as follows:—

The swimmer may choose any position of body which he feels or thinks will afford him the greatest purchase or power for springing. Many and diverse are the attitudes assumed by swimmers preparatory to the leap off at starting; some of them graceful, striking, picturesque; others awkward, distorted, ludicrous. It would indeed be a study for the artist having an eye to the idiosyncrasies of shape into which the "human form divine" can be put, to note the figures of the competitors waiting for the signal to start at some of our swimming matches, especially if the race is to be a sprint or short one, when each one is on the alert for the word and anxious not to be taken advantage of at the beginning by his neighbour, if he can by any possibility of means help it.

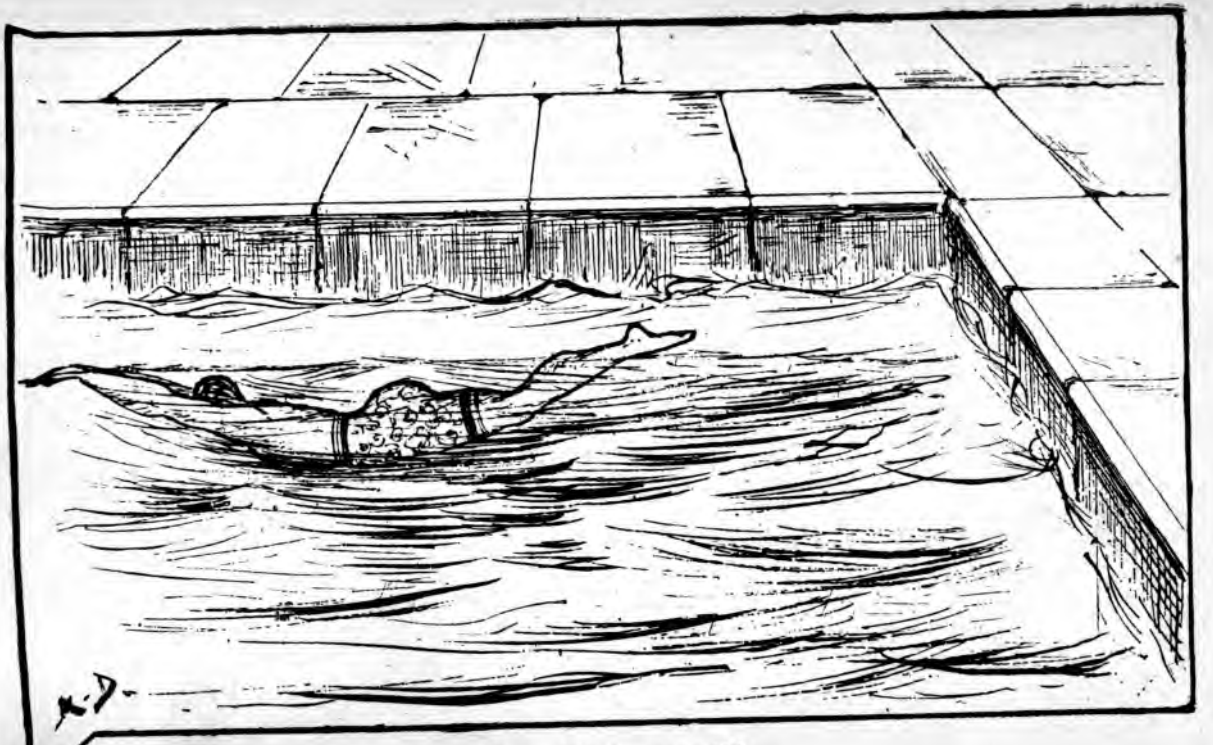
We should advise that the knees be close together, the poising point being the ball of the foot, the knees slightly bent, the chest inflated and expanded forward, both arms being held backward from the body

much in the same position as when preparing to leap.

The lungs having been charged as if for a medium long dive, the whole body is crouched as it were, and the spring is made, and this spring let us remind our reader is an important factor in the whole performance.

The spring forward should be accomplished with all the power at one's command, and this power is supplemented by swinging the arms from behind the body, and once the feet have left the springing point the hands are swung up to the direction of, and carried beyond and in advance of the head.

The body should be shot as far in the air as possible before touching the water. While in mid-air the head is drooped until the chin touches the chest, while the ears should be touching the inside of the arms at the biceps; at this juncture the chest should be slightly hollowed, and the shoulders contracted, and this will assist the body to glide into the water. Once the body has entered the water the hands should be laid flat, the thumbs locked or hooked. This locking of the thumbs enables the arms to be more rigidly stretched in front. The body, as it moves forward with the force obtained from the spring, should be under and parallel with the surface. The air in the lungs will float the body upward independent of any effort to carry it to the top of the water.



(PLATE VII. (see page 62.)

The hands should be stretched as far in front as can be, in much the same way as if the points of the fingers were trying to reach something just beyond them. The shoulders are kept contracted. The hips, knees, ankles, and toes braced and stretched in one rigid straight line. The instep and toes being in a line with the front of the leg, and the soles of both feet must be facing full to the surface of the water.

In this position one will keep moving close to and along the surface for as great a length of time as the breath can be retained and the feet do not sink.

While lying thus it is imperative that the hands and arms be stretched to their greatest tension forward, the shoulders and hips being kept contracted.

As soon as the feet sink the impetus is spent, and no more progress forward can be obtained. In fact, if one lies still and allows the feet to sink, the distance will be shortened, as then the body, and of course arms too, sink backward.

With ordinary practice one will soon be enabled to traverse a distance of at least 40ft. without a stroke, and greater distances are being constantly accomplished. Mr. R. Green, in the Margaret Street Bath, Liverpool, went 68ft. 4in. in one plunge; and it is on record that in March, 1880, in the Swanston Street Baths, Melbourne, Mr. J. Strickland plunged 73ft. 1in. —a marvellously clever and creditable performance.

The idea has frequently suggested itself to the writer, that by means of a long and powerful plunge

a person leaping from a wrecking ship would clear such a distance as would take him beyond the crowd usually struggling in the water, among whom there is so much danger of being clutched and harassed. A good plunge would also carry one beyond the vortex caused by the ship settling down, and by which whirlpool action of the water so many are drawn under and lost.

CHAPTER XII.

TOUCHING AND TURNING.

THIS branch of swimming, known as "touch and turn," is more practised for racing than for ordinary purposes in the bath; still, the movement is so graceful in appearance, and so comparatively easy of acquirement, that all who frequent the bath, whether to move about by means of the breast stroke or the more advanced motions, should acquire and perfect themselves in details of this method of adding to celerity of movement whether in a long or short bath. Touching and turning at the ends or sides of the swimming pond is of such utility in increasing speed, independent of the beauty of the performance, that in trials of fast swimming against time it is the rule to add a second or two, in making up the time, for each "push," as it is more commonly called by professional and amateur experts.

It is owing to the benefit derived from the push at the ends of a bath that a short pond is chosen by the "knowing ones" in order to accomplish a good or passable record. It will, therefore, be apparent that,

on reading or hearing of a certain distance having been swam in such and such a time, it is necessary, in order to form even an approximate idea of the performance, to know the length of the bath, or how many "turns" have been in the distance. It is also the case that one swimmer may turn smartly and not go far with his push, while another may go a good distance by means of the push although slow at his turn.

In nearly all competitions it can be observed that a fast swimmer may be slow at pushing off, while a slower swimmer may, by being quicker at turning, diminish the gap separating him from his opponent at each end, the other, by his turn of speed, improving all in the straight run. By the same means we may account for the fact that one swimmer beats another in open water, while over the same distance in a bath the victory goes the other way.

It is many times the case that swimmers, when first learning the push, declare against it, owing to pains in the calf of the leg or front of the thigh, and because they find it putting them out of breath.

The pains in the legs will wear off as the practice is kept up and the muscles become more fully developed and inured to the work.

As far as the breathing is concerned, the swimmer must remember that, as in ordinary swimming, he should not dip his head when on the "turn" without *having* first taken a full inhalation to give the lungs a

supply sufficient to last until the mouth is clear of the water at the finish of the "push."

There are several styles of touching and turning, but we shall content ourselves with a few instructions on how to perform what we consider three of the best methods, and shall begin by advising the learner to practise across the bath from side to side, and to be in not the slightest hurry. Master the details of the "turn" by very slow motions; nor need there be any desire to lengthen the "push" until one knows that he is performing all the motions correctly. We assume once more that the pupil is lying on the right side; he must, therefore, when about 3ft. from the end or wall of the bath, have finished the progressive movements of the left hand, which, instead of being put into the water to renew the stroke, must be reached forward in advance of the head until it touches the wall immediately above the water-mark. The palm of the hand is then placed flat against the side of the bath, the hand being in a horizontal line, with the fingers pointing to the right, which is the direction one will turn to. The little finger is uppermost and the thumb downward. This done, the body is close to the side of wall, the knees are now bent, the body turned round by pushing with the hand that is on the solid, until the feet are pressing on the wall and directly below this hand, but of course under the surface of the water.

The whole body is now drawn up, or crouched

together, and is turned as it were on its own axis. It is under water, head and all. The soles of both feet are now placed hard against the wall, the hands put together in front of the head, which is kept between the arms, and the position of body and limbs should be the same as shown in diagram.

By a strong movement of the legs the body is pushed off from the side, as if shot from a catapult and straightened; its position when lying on the push is the same as when lying still in plunging. From nine to fifteen and twenty feet is the distance generally covered by the push off before renewing the stroke.

ANOTHER METHOD.—Swim close up to the wall as before, when about 2ft. from the end gather the body in a heap by drawing the knees up under the body, and by a powerful movement of the left hand push the water outward in such a way as to turn the head to the right, and until the feet are next the wall and the head towards the centre of the bath. While the body is turning a breath is taken, and the head is allowed to sink. The straightening of the legs will now bring the feet against the wall, and, in order to have good purchase for the push, be particular to have the soles planted flat against the wall, and finish by pushing off as before.

It will be observed that by this style the hands have not touched the side at all. In some parts of the *country, particularly* in London, competitors are

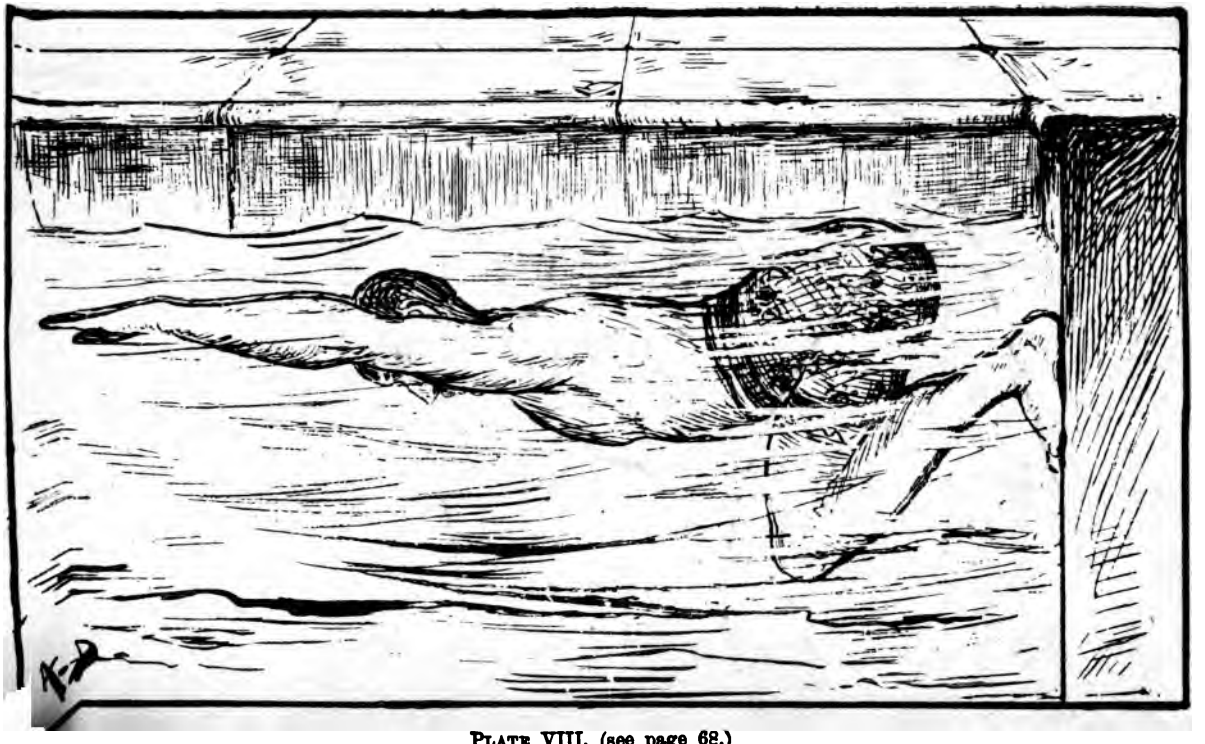


PLATE VIII. (see page 62.)

not allowed to use this turn, it being given as a reason that as the hands have not touched the ends the distance swum will be this much short. We fail to see this, for, as the feet have touched, no matter how far off hand or head may be, the feet at least must have traversed the distance.

ANOTHER STYLE.—Swim up as usual to within about 5ft. from the end, then, without losing any impetus, roll round on to the back, the way that is on the body will keep it going; now let the feet sink by pushing downward and in the direction of the wall with both hands, at the same time throwing the chest flat on the water. Sink the head, put the hands in position in front, stretch the legs behind, and a strong push will effectually send the body forward. The hands, as in the other method, have not been allowed to touch the wall. This style is quick and effective, it also has a neat and graceful appearance, and one does not require a great deal of practice in order to attain perfection at it.

Regular practice every time one enters the water should be the rule in touching and turning as in ordinary swimming.

Be sure to correct any slip or mistake as soon as it is detected; one must be especially careful to guard against pushing off, even to the smallest extent, stronger with the one foot than the other, else a slip may take place on the smooth tilework, and that means a loss of perhaps a yard or two; and in the

case of a competition puts the swimmer off his course or station, when bumping against another swimmer and fouling are likely to occur.

Pushing may be practised in the sea against rocks or piers, or even boats, and in rivers and lakes from and to a bank or tree stump, fixed plank, or any upright pole, or firmly-secured contrivance.

CHAPTER XIII.

PLATE SWIMMING.

SINCE Doctor Franklin, in his essay on swimming, suggested the use of paddles on hands and feet as aids to propulsion in water, many contrivances have been invented, tested, and in turn discarded, as proving short of their requirements or expectations.

We do not know the precise details of Franklin's paddles, but consider the following to be as nearly as possible a description: Those for the feet cut an inch or two outside the line of the foot all round, and fixed by means of a string. Those for the hands cut somewhat after the same pattern; this hand paddle was fixed by passing the fingers through small straps, and, when on, lay on the back of the hand in the same manner as an old fighting shield. We are afraid the shortcomings of these flats or paddles must, immediately they were put to a practical test, have become painfully apparent.

In 1764 William Cobb introduced a kind of shoe or boot, having pieces of wood cut in form of the soles, with hinges screwed on to the wood, and having

joints covered with leather fastened on to the shoes. These joints and hinges allowed of the boards being closed and spread out in swimming like a water bird's webbed feet.

In 1844 John Cox, of Edinburgh, perfected and patented a machine in which the bather or swimmer was to lie in a wickerwork boat and work with his feet two oars or rudder-shaped paddles, which were collapsible. We are told that by means of this contrivance the inventor made his way across the Firth of Forth at Queensferry, a distance of four miles, in fifty minutes.

This same Mr. Cox in 1857 constructed several kinds of paddles to be worn on hands and feet; some of these were made to open and fold like the covers of a book, while others were more like an umbrella, and were attached to the feet and legs with straight pieces of wood or cane.

Albert Davis about the same time patented shoes having flaps on each side. These flaps remained open when the kick was delivered, and closed automatically as the feet were returned to the body.

A fin apparatus fixed to the leg between the knee and ankle was invented by Jean Chastel. This was also made to open and close with the motions of the legs in the same fashion as an umbrella.

Webbed gloves and air gloves were tried in 1867, and in 1868 a flexible tail to move to and fro from

side to side by alternate motions of legs was patented by Mr. Mabson.

The afore-mentioned, along with many other inventions, have had, as may be easily understood, only partial success. The most of them we are inclined to prove must have had their origin in the brains of those who were almost, if not quite, ignorant of the true mechanism of the swimming motions as applied by the limbs of the human body.

It has been repeatedly proven that in the collapsible fins and boards the "drag" necessary to close the blades in returning was not compensated for by any reduction of "slip" in the propelling power of the movements. In nearly all the contrivances which have been put forward to help or revolutionise swimming the inventors must have assumed that the feet are sent straight backward and returned on the same lines. In some cases, in order to have the benefit of the invention, man's body would have to be of the same form and specific gravity as the feathered bipeds peculiar to water; in other instances, nothing short of the form of a fish would have enabled one to put to anything like practical use the much-vaunted machines.

To Mr. R. H. Wallace-Dunlop, of London, is due all the honour and credit of giving us a really practical improvement whereby "slip" is to a great extent diminished, while the "recovery" motions of hands and feet are in no way interfered with.

The patentee having studied scientifically and otherwise the true swimming movements, has introduced what is hereafter to be known as "plate" swimming, and already by its means quite a revolution has been accomplished in the history of our art.

The plates or paddles are made of different kinds of wood and veneer, are of three sizes, for ladies, learners, and experts. They are easily put on and detached. Those for the hands have leather straps, which pass through slits in the wood; into these straps the hands are put, and no more fixing is required. While in the water the hands may be lifted from the strap, and as the plates float on the surface they are put on in an instant by merely passing the hands into the fastenings.

On the foot plate there is an upper made of leather or waterproof canvas fabric; into this the foot is placed in the same way as one would put his foot into a slipper. The laces need not be loosened, the first tying and fitting being all that is necessary. There are straps made of leather passing through brass eyes, these are adjusted round the ankle and fitted with an easy working and ordinary plain buckle. The ankles have full play, all the motions are free, laterally and otherwise, and when on the feet and ankles have a secure and comfortable feeling. This lateral movement from the ankle is conspicuous by its absence in all the other inventions.

Like many other inventors, Mr. Dunlop has had much ill-natured and ignorant prejudice to contend with, and on several occasions this opposition emanated from quarters in which it might have been least expected; strange to say, some old swimmers and teachers of the art give it the cold shoulder, and disparage it as "nothing new," "not of any account," "a physical impossibility," and so forth.

Having, however, thoroughly tested his invention, and being satisfied as to its really practical utility, the inventor was not to be dissuaded from his desire to popularise the discovery, and so far the greatest success has rewarded his untiring and praiseworthy efforts.

Not only has Mr. Dunlop opened up a new era in swimming by means of his invention, but by the publication of his book, explanatory of the method, and by other writings on the subject, he has given us more insight into the science of the movements than have been afforded to the reading world in all time past.

The claims made on behalf of the plates are that "they make swimming easier, pleasanter, and more effective; changing what is sometimes an exhausting labour into a delightful recreation," and that they "make a powerful swimmer of a weak one."

In introducing a few brief hints on how to use the plates in swimming, we think we cannot do better than quote a sentence appropriate to the occasion from Mr. Dunlop's own work "Notes on the Science

of Natation."* In page 38 he says :—"It must not be forgotten that plate-swimming is an accomplishment as distinct as roller-skating, and although many persons find no difficulty in using plates at the first trial, their slide and grip of water, if misused or inverted in action, will impede or obstruct a novice just as they give power and speed to an expert."

We have seen something like this happen a few times, but as a rule the moderately good swimmer soon finds out, and takes pleasure in the correct mechanism of the movements. As before stated, there are three sizes or kinds of plates, and the learner will do well to start with the smaller. He must remember that, as plates are used in order to increase the pressure area of the soles of the feet, the propelling power will now be obtained from these parts instead of from the inside of legs, ankles, and feet, as explained in Chapter VII., p. 39.

This being understood, let us now proceed with our instruction in this new branch of swimming.

Once the plates are adjusted and in position, the feet are to be spread apart by pointing the end of the plate in front of the toes outward, and slightly upward to the side, and one should feel that the flat surface or sole is in position to press directly against the water. The instep of the foot must be in a line with the front of the legs, and these limbs are brought powerfully and stiffly together, the ball of the feet and

* Routledge and Co., London.

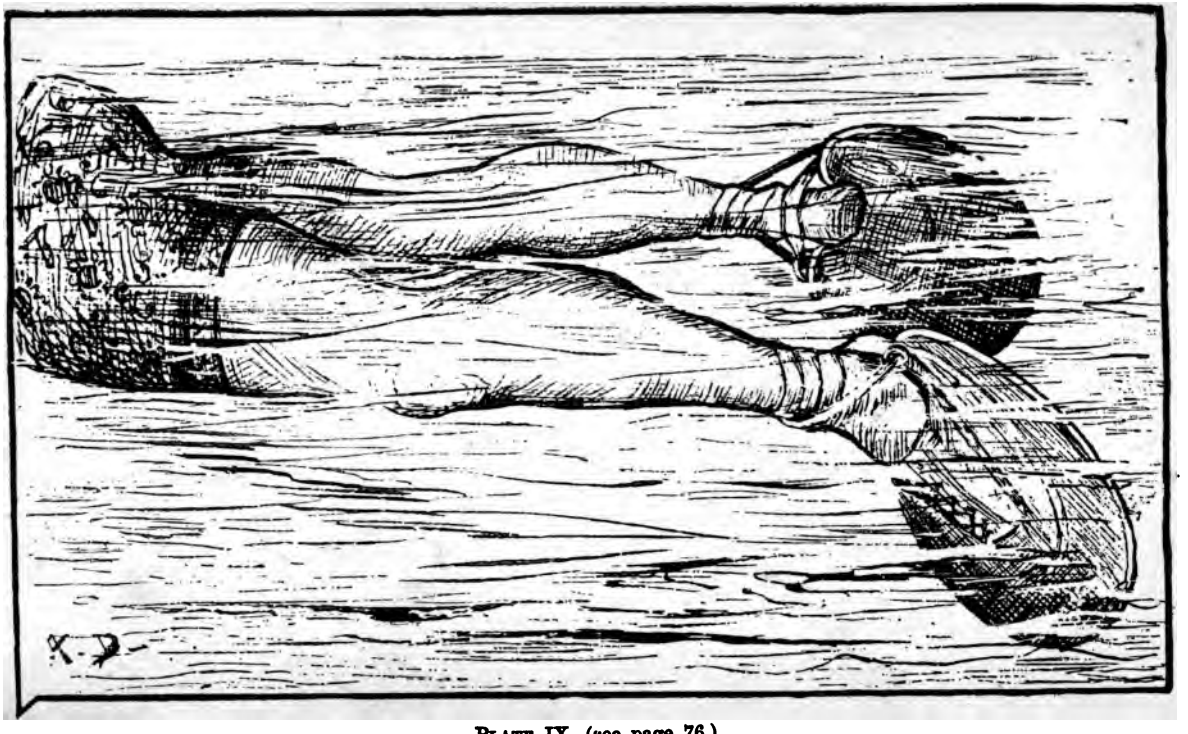


PLATE IX. (see page 76.)

the toes pressing on the plates to produce the propelling power and resisting surface. The knees are of course turned outward to accomplish the "recovery" movement, and at the same time the feet are brought up to the body, heel first, with the plates edgeways cutting their own way. Once the feet are close up, a slight motion of the ankles will put them in position for repeating the propelling movements, and it should be understood that from the time the outward movements are started with plates on, the positive or propelling part of the kick has begun.

These movements of the feet and legs should be practised many times before the hand plates are used at all, and not until the leg motions are performed correctly in every detail, and the recovery movement works smoothly and without any feeling of "drag," should the practice with hands be started.

In beginning to use the hand plates one should be more careful than in ordinary unaided swimming to note particularly the different effects of inclination. As the hands are put out in front of the chest at the start of the stroke, the plates must be lying flat, or perfectly parallel with the surface of the water, and not with the parts representing the palms of the hands together. The palms of the hands face downward, the backs of the hands to the top of the water. At this part of the movement, if the plates incline at all downward the head may be drawn under. On the other hand, if they are allowed to incline upward, no

matter how slight the angle, they will emerge above the surface, a stroke will be lost, and the movements confused. As soon as the hands have reached the end of this front stretch, a half turn of each wrist will be made to turn the surfaces of the plates outward from the body, then follows the pull round, or positive part of the movement. Once the hands and arms are far enough round to be in a line across the back and shoulders, the hand is bent from the wrist and the plates are returned edgeways perpendicularly to the front of the chest in order to renew the stroke.

The kick with plates on is so powerful, and sends one through the water so fast, that the face invariably lies deeper than in ordinary swimming. This is of little consequence, and, if one is at all conversant with the method of breath regulation, has no inconvenience. Those, however, who use the plates solely for pleasure will find that their floating power with ordinary movements will tend to keep the head above the surface.

THE SIDE STROKE with plates on requires neatness and care with the negative movements of both upper and lower arms.

Once the positive stroke of the upper arm has been accomplished the plate is turned to face inward to the body, and is carried up to the shoulder in that position. Once the shoulder is reached, the plate is turned outward, and with the surface pressing on the water, pushed toward the feet, and this forms the stroke with the one arm.

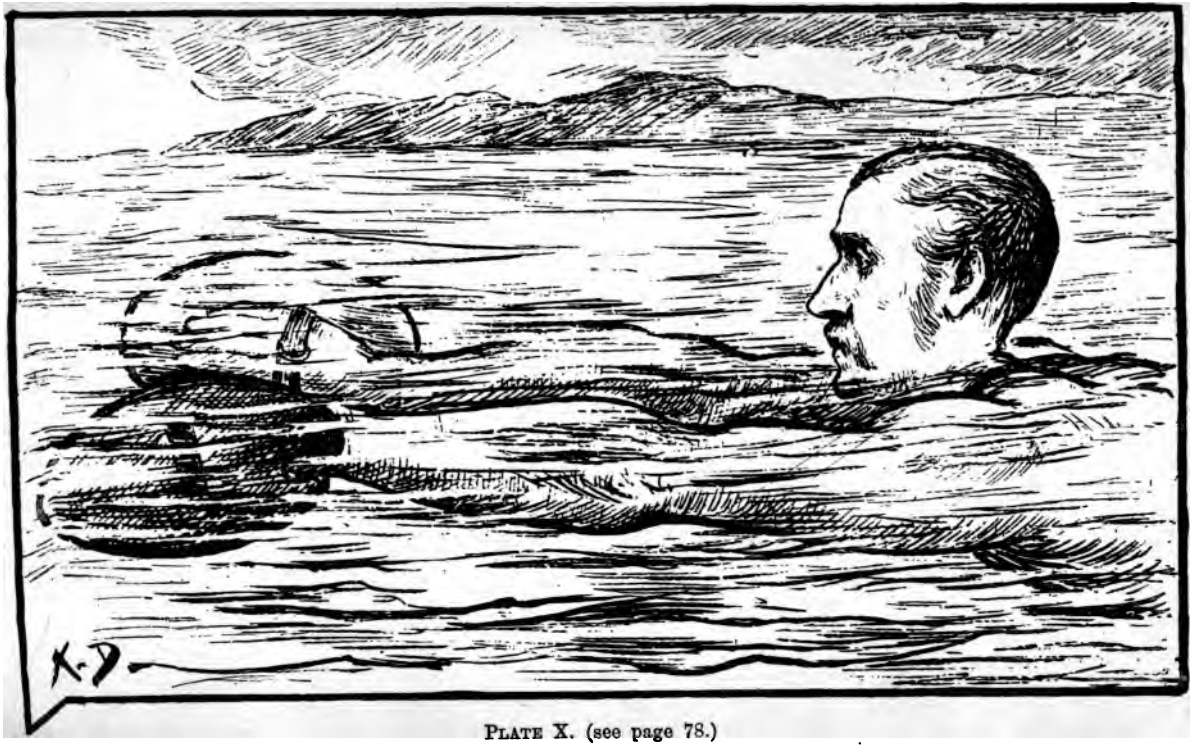


PLATE X. (see page 78.)

With the undermost hand the part of the movement requiring care is the putting of the hand into position when about to return it after delivering the stroke. Practice alone will enable one to judge the correct angle in which to carry the hand along the body at this part.

In ordinary side swimming without plates the front of the undermost foot offers the resisting power, and this of course allows of a large amount of "slip." With plates on, the knee and ankle are turned in such a way as to allow of the soles of both feet, or rather the surfaces of both plates, meeting after the positive part of the motion. In all other respects the movements of legs are the same as without plates.

OVERHAND STROKE.—When swimming overhand with plates on it has repeatedly suggested itself to our mind that the vulcanite or shelled plate for the uppermost hand, which we saw in Mr. Dunlop's possession some years ago, and which we tried at the time, was peculiarly suitable for this style of swimming, and is more like the actual shape of one's hand when the dip in front of the head is performed. And we cannot help thinking that such a plate should be obtained by those who practise overhand plate swimming.

No new instructions differing from ordinary overhand stroke without plates are at all necessary, unless with the movement of the undermost foot, referred to in the last paragraph in reference to side stroke, and

the motion of undermost hand when returning it along the body after the positive movement.

BACK SWIMMING becomes very easy with plates on, and the extra speed and length of stroke is at first surprising. The instructions on the leg movements in page 77 hold good in all plain back swimming with plates.

But besides these motions, Mr. Dunlop also practises what he calls "sculling." The difference between this and the ordinary leg movements is that the knees are turned inward and the feet or plates outward as they are being brought up to the body. Then, as the stroke is about to be delivered, the ankles are turned to bring the front of the plates round; the heel being as it were the training centre or pivot, and the outside or front end of the plate describing a quarter circle. As soon as this outside edge is in position from the body the feet are spread apart, and afterwards brought close by means of a strong action. This method of propulsion is not by any means a graceful performance, but it is very powerful and fast, and affords one a thorough grip of the water.

Floating in any position is very easy with plates on; while diving, and in fact all movements on or under water are accelerated and intensified by their use. For long distance swimming they are much to be commended, and we assure our readers that swimming in a rough sea with plates on is a delight *and a* luxury no good swimmer should miss.

CHAPTER XIV.

ROUGH SEA SWIMMING.

MUCH diversity of opinion exists as to which is the best manner of swimming in a rough sea. Many are under the impression that the improved or advanced strokes are of little service when swimming where the waves are heavy.

Captain Webb writes in the same strain, but it must be borne in mind that until very lately he had never practised either the side or overhand strokes, and consequently was scarcely qualified to speak in a thoroughly definite tone on this part of the question.

The fact that Beckwith and Cavill have swum as long distances as the Captain, and in less time, using the newest styles of progression, is abundant proof in their favour, and is a convincing argument, if any is needed, that these strokes should be used in almost all circumstances.

The side swimmer makes no attempt to breast or mount the waves, as it is called. The true and sure method of sea swimming is to go right through them: and no great effort is necessary to accomplish this.

As the swimmer sees the breaker coming he should take a breath, swim on, sinking his head while doing so, and in an instant or two he will emerge when the wave has passed over him. The big rollers come almost regularly after a succession of small waves, and one will soon be enabled to know almost to a certainty when the large ones are coming without looking out for them at all. When the head is submerged, one should exhale, opening the mouth again when the head is clear. He will thus receive in an instant a supply of fresh air, and will live in a tolerably rough sea for an incredible length of time.

We have been carried stroke after stroke, when in a rough sea, as nearly as we could guess, twenty yards at a time—that is, carried this distance through the water on one stroke; and no doubt those who swim regularly in the sea, rough and smooth, can go greater distances.

PLATE XI. (Entering a Wave.)

CHAPTER XV.

DIVING.

THOSE alone who are intimately connected with diving matters, who follow its practice for scientific purposes, or as a pastime, profession, or occupation, can form any adequate idea of how largely it enters into the commercial enterprises of our own, and almost every country under the sun.

This thought may to some extent be an excuse for our taking a closer look at the subject. We shall take the liberty of going somewhat into details that are not often considered, under the impression that the inquiry will prove somewhat interesting, and be the cause of the diver's occupation receiving that consideration for, and sympathy with its importance and its dangers that have seldom or never been accorded it.

Diving has been defined in several ways by different writers. One lexicographer has it, "to descend or plunge into water head first;" another, "to thrust the body into water or other liquor, or, if already in water, to plunge deeper;" a third, "to sink, to penetrate,

to submerge;" a fourth, "by muscular exertion to move about under water." A combination of the two latter meanings will, we think, give us the true import, and on this assumption we shall proceed.

The desire to know more of what is beyond our common confines, to penetrate into the mysterious, and to subvert this knowledge to our own uses, has actuated man from an early period in the world's history with the wish to explore the hidden mysteries of our rivers, our lakes, our seas. This innate determination to know something beyond common or ordinary ken is, all things considered, easily understood: it is only one of the many phases of the human nature and disposition of man, and in diving it is no doubt further developed by the thought that the "wedges of gold and heaps of pearls" said to be scattered on the bottom of the sea may become his own property.

Until somewhat less than three hundred years ago, natural or unaided diving was the only means whereby man was enabled to move or work under water at all, and this freedom of movement was, as may be supposed, very limited, and of the most primitive description.

Homer, in the Iliad, gives proofs of diving having been practised eleven hundred years before the Christian era.

Thucydides is the first, however, who makes mention of diving having been used for purposes

other than oyster or pearl fishing. He it is who tells us that at the siege of Syracuse the Greek vessels were destroyed and impeded by piles of wood that had been driven into the bed of the river, and divers were employed to cut down and remove these obstructions, and make way for and render safe the passage for ships of war and commerce.

We are told that the divers of Syracuse were very expert at going under water and destroying the enemy's ships. There were apparently no torpedoes nor any other equivalent destructive agent in those times.

Diving, as an important part of Rome's guilds, has been acknowledged and written of by Gruterus, who says that the Urinatories were an incorporation of divers, and the following was inscribed on the building devoted exclusively to their use—

"Patrono, Corporis, Piscatorium et Urinatorum."

In connection with this subject it is somewhat refreshing to recall the episode in which we are made acquainted with the story of how Antony, when in Egypt desirous of displaying to Cleopatra his skill as an angler, hired a diver to slip into the water and fix a fish on his line, and the fair enslaver discovering the little trick, paid another swimmer, who put on a salted herring, which in due time, and with all ceremony and display, the clever fisher to his own disgust and mortification landed at the feet of his laughing mistress.

Natural diving or working under the surface of the water without mechanical apparatus is practised only in the present advanced stage of the science by those who fish for pearls, coral, and sponges; and in order to give some idea of the extent to which these industries are carried on we shall give some figures, and follow with brief descriptions of how they are conducted.

In Ceylon in 1798 the pearls obtained amounted in value to 192,000*l.* In 1802 and 1804 the fishing ground was farmed for the sum of 20,000*l.* per annum. In the Bay of Bengal, on the coast of Japan, and in the Indian Archipelago, the yearly produce is estimated at 800,000*l.* On the banks of the Island of Bahrein, the most important pearl fishery in the world, the fishing is worth 350,000*l.* At this place alone there are upwards of one thousand boats engaged, manned and owned by Arabs.

These figures it will be seen amount in the aggregate for pearl fishing alone to no less a sum than 1,362,000*l.* per annum.

The value of coral imported into the United Kingdom amounts to 43,000*l.* per annum. Part of the coral is taken direct to Leghorn (Livorno) to be cleaned, trimmed, and polished in the lapidaries there. Four factories, employing among them about nine hundred workpeople, are in constant operation in this place, and altogether there is in Leghorn alone work given to upwards of one thousand people in *trimming* coral. It is not easy to ascertain with any

degree of certainty the value of the sponge fisheries, but some idea of their importance may be formed from the knowledge that four hundred and eighty boats, with a crew of four or five men in each are engaged on the Syrian coast. Sponge fishing by means of diving is also prosecuted in the Red Sea, and at various stations on the Mediterranean. In the Gulf of Mexico it is also conducted by American, British, and Spanish divers.

Dangerous and unhealthy as diving is known to be when employed as the means of procuring these articles of use and ornament, there are whole villages and communities whose ancestors have pursued it, whose fathers have perished at an early age by it, and the individual members of which know, that in fifteen cases out of twenty, death is the result of accident while under the wave, or of disease contracted by the peculiar nature of the occupation.

At Ceylon the pearl diving commences in the month of February, and lasts for two months, upwards of two hundred boats being engaged in the enterprise; each boat carries twenty or twenty-two men, ten of whom are divers, the others managing the craft and assisting. So in this one fishery alone there are as nearly as possible 2000 divers, not including the rowers and assistants. The divers in each crew are divided into two gangs, the one resting while the other is at work. Great preparations are made by these divers for weeks pre-

vious to the commencement of every season. Each one goes into strict training, rubs his body with oil, and eats only of the most nutritious articles of diet.

They are very superstitious, and during the diving time they carry with them a talisman, consisting of three leaves from a particular kind of tree, on these leaves there are inscribed some cabalistic characters, and this they believe to have potent sway in protecting them from the monsters of the deep.

A bag or basket is carried round the neck, and instead of descending head first, they stand upon a stone weighing about half a hundredweight. This stone is pyramidal in shape, and has a hole through it; a line is passed through the hole and fastened. The diver's ears are stuffed with cotton, and the nostrils closed with a small piece of horn specially prepared for that purpose; a long breath is taken, the line is loosened, and the diver holding the cord with both hands, and standing on the stone, is carried by the weight downward. As soon as he has got to the bottom the stone is drawn up by those in the boat, and the diver gathers all the shells within reach and puts them in the receptacle hanging round his neck. The stay under water varies from forty to sixty-five seconds, and on feeling exhausted he gives a signal by tugging the line, and he is drawn to the surface with despatch. The labour is severe, and on being lifted into the boat blood often issues from mouth, nose, and ears.

The divers are much exposed to danger from the sharks and large fish which infest these parts, and many highly spiced tales are told of the adventures with the finny tribes at the bottom of the sea.

Coral fishing is carried on at depths ranging from thirty to sixty feet. Diving for coral is the most fatiguing of all work under water, and this manner of sinking and looking for it is now being discontinued, and drags are being used instead.

On the Syrian coast the sponge harvest commences in the month of June, and continues to the month of October, July and August being considered the most favourable periods.

The inferior kinds of sponge are those to be had in shallow water; the finer and more valuable qualities being obtained only at depths varying from twelve to twenty fathoms. The coarse kinds are dragged by toothed harpoons, and are greatly reduced in quality and price by this rough process.

The divers are very particular when collecting the fine sponges, which they carefully detach from the rocks with sharp knives. The prices are enhanced in proportion to the neatness and particular way in which they have been cut off.

The sponge divers of Kalminos and Psara are the most renowned experts; they go to greater depths than the Syrians in search of the finer qualities, which they bring to the surface in greater quantity and in less time, and the method adopted by these famed

divers in severing the sponge from the rock is much admired.

Sponges are to be found adhering to the projecting parts of rocks, stones, and coral. After the diver has cut off his quantity he tucks them under his arm, shakes the rope, and is hauled up with his booty by his companions in the boat.

In the Gulf of Mexico a pole weighted at the one end, and with the other fixed to a boat, is let down; along this pole the diver slides to the bottom, gathering whatever sponge is close at hand. As the water is shallow these sponges are of inferior quality.

In the waters of the South Pacific diving is resorted to by the natives as a means of catching the poulpe, which is eaten by them.

The poulpe diver is armed with a wooden pole, to the end of which is fixed a pointed piece of iron; a sharp knife is fastened by a thong round the neck, and a bag containing some slaked lime is taken down. When the fish goes into any crevice or hole into which the pole cannot penetrate or turn round, the lime is thrust in, and the fish becoming insensible is easily withdrawn, and sometimes it floats to the surface.

The diver is fond of impaling the fish while under water, in order to receive the shout of triumph on emerging above the surface.

This method of catching such a formidable animal *is fraught with* considerable risk, and the poor natives

have many a narrow escape from a horrible death when in search of this particular kind of food, which is neither palatable nor wholesome. In order to render it more eatable and tender, the natives beat it to death with stones or iron bars. So they have the satisfaction of revenge for the danger undergone; and no doubt the degree of sweetness attending this revenge will depend to a great extent on the flavour of the particular fish.

Captain O'Brien says that in the Bay of Conception pearls are often found in the shells of the *Mytilus edulis* or common mussel, and he describes the method of procuring them: Generally a man and woman proceed in a boat or canoe to the mussel bed, and the man thrusts a long pole downward, fixing its uppermost end to the boat. The woman gets up on the gunwale of the little craft, and, taking a long breath, grasps the pole with both hands and glides downward. She gathers two handfuls, and quickly ascends. This she repeats until she is tired, or the cargo assumes satisfactory dimensions. On remonstrating with one of these men for his lack of gallantry in allowing a woman to perform such arduous and dangerous work, he explained that mussel diving was a privilege of the sex, and no one would be so unmanly as to attempt to deprive a woman of her birthright.

The natives who fish for turtle possess a thorough knowledge of how to move about and remain under

water, and diving as a means of catching this favourite is quite common in the West Indian Islands.

The turtle hunter, by certain well-known signs, is made aware of the presence of the fish. He enters the water, dives under it, and, with a long thong made of grass, lassoes round one of the fore paws or flippers, and tows him in triumph to a boat or to the shore, where he is sure of a hearty welcome.

Various and conflicting statements as to the length of time divers in different parts of the world can stay under water have been given by travellers, but from reliable authority we have it that the submersion seldom, if ever, exceeds two minutes. It must, of course, be granted that these fishermen divers have no great reason to prolong their stay when down, still it does seem almost wonderful that in Britain divers have exhibited more skill, and remained under water a much longer time than any reliable record gives us of the powers of these foreigners.

William Sutherland, for many years the "Rescue" on the beach at Aberdeen, in the north of Scotland, in the spring of the year 1877 was under water, in the Crooked-lane Bath, on the occasion of an entertainment for a charitable object, for three minutes fifteen seconds.

Lurline, "Queen of the Waters," in a tank performance in London, in the month of December, 1881, was under the surface two minutes fifty-one and a *quarter* seconds.

John Gorr, at an aquatic display in the Woodside Baths, Glasgow, remained at the bottom for three minutes fourteen and a half seconds on the 11th October, 1882.

We have repeatedly seen Professor Peter Johnson remain under water three minutes and a half. In June, 1876, we took time in the presence of several hundreds of spectators, when he was at the bottom for three minutes fifty-seven seconds.

He, in the months of February and March, 1882, in Hull, in Cardiff, and in Belfast, remained under water for four minutes fifteen seconds!

We have many times heard Johnson advised most seriously to stop these performances, as they must certainly do a great injury to his health. To our own knowledge, this wonder-performer, who holds a high position in the swimming world, has been excelling for sixteen years, and to-day he looks, and we know feels, as strong in lungs, muscle, and general health as he did at the beginning.

We are inclined to the belief that constant practice develops certain muscles of heart and lungs affected by respiration, and, well regulated in every other respect, he who prudently develops his natural gift for the display of this peculiar art or science is all the time diminishing chances of danger. While saying this we do not in any way argue that one should attempt to outdo anything in this way.

It would be well, however, that all swimmers should

have occasional practice in diving, in order to be better able to render assistance when called upon in case of accident in the water; this practice will also serve to make him feel more at home when enjoying the exhilarating exercise, and will be of great service in many ways. It should form part of the swimming lesson, as the management of the breath would be more paid attention to were the pupil to be encouraged to go under water frequently.

The swimmer must feel small indeed if, on dropping an article into deep water, he finds he does not possess knowledge sufficient to enable him to recover it. To obviate anything of this kind the practice of diving is of importance. Before taking leave of the subject, we shall offer a few brief instructions on this branch of swimming, and hope that the lessons may be productive of a love for diving and all pertaining to it as a science and as an art.

HEADERS, &C.—In answer to the question so often put, as to what may be considered a safe height for a dive, and the depth of water necessary for the various dives and plunges, we should say that it all depends on circumstances.

One swimmer may strike the bottom of the water seven or eight feet deep with a spring from a height of not more than three feet, while another will quite easily and gracefully dive from a height of thirty or forty feet into the same depth, and not go near the bottom.

A great deal depends, of course, on the angle of the body when entering the water, but a knowledge of how to counteract the impetus, or, by a movement of hands, neck, arms, and shoulders, to make this impetus the very means of bringing the body to the surface before it has had time to go further than a very few feet downward, is indispensable to good or finished diving of any kind.

In ordinary sea or river or lake diving, where there is plenty of depth, it may be thought that there need be no attention paid to this particular. This is a mistake—advantage should be taken of every occasion, in order to note the many effects of inclinature and height under different circumstances.

The most timid may become daring and fearless divers by springing at first from the ordinary board, until accustomed to the exercise. Then, as he is satisfied that he is doing it properly, increase the height by twelve or eighteen inches at a time, until the ordinary high dive of, say, ten or twelve feet will seem easy of accomplishment, and all feeling of fear or uneasiness is gone.

There should be no indecision or wavering as one springs off. The fearlessness with which a high dive is made adds to its perfection and graceful appearance. There should be no apparent dive downward; the perfection of style in high diving or "Headers" is attained when the performer springs

forward into the air, as if he were going to essay flying; when in mid-air, the position of the body is changed, and the shoot downward made by inclining the arms downward, throwing the feet up behind, and keeping the head between the arms. The chest is also for an instant contracted, and one will glide or slip into the water without splashing, and with less noise than in plunging. The positions of the body in its progress from the spring off until it emerges above the surface, will be more easily understood by referring to plate on page opposite.

No one diving from a height of, say, twenty feet above the surface need go deeper than three or four feet into the water, and no longer time than a very few seconds need elapse between the entry into the water and the re-appearance on the surface.

The rules as just given apply to all kinds of high diving—headers, and running headers; with the latter the probability is a deeper dive. In jumping from great heights, such as from the yards of a ship, one should be particularly careful to spring off at the angle downward instead of springing outward, and care must be taken not to let the angle of the body be altered by the wind that may be blowing at the time, or by any sudden hitch as the jump is made, or an ugly and sometimes dangerous smack on the surface may be the result. We have seen very few such accidents happen, still the fact remains that *they do sometimes* occur, and a little self-pos·ession

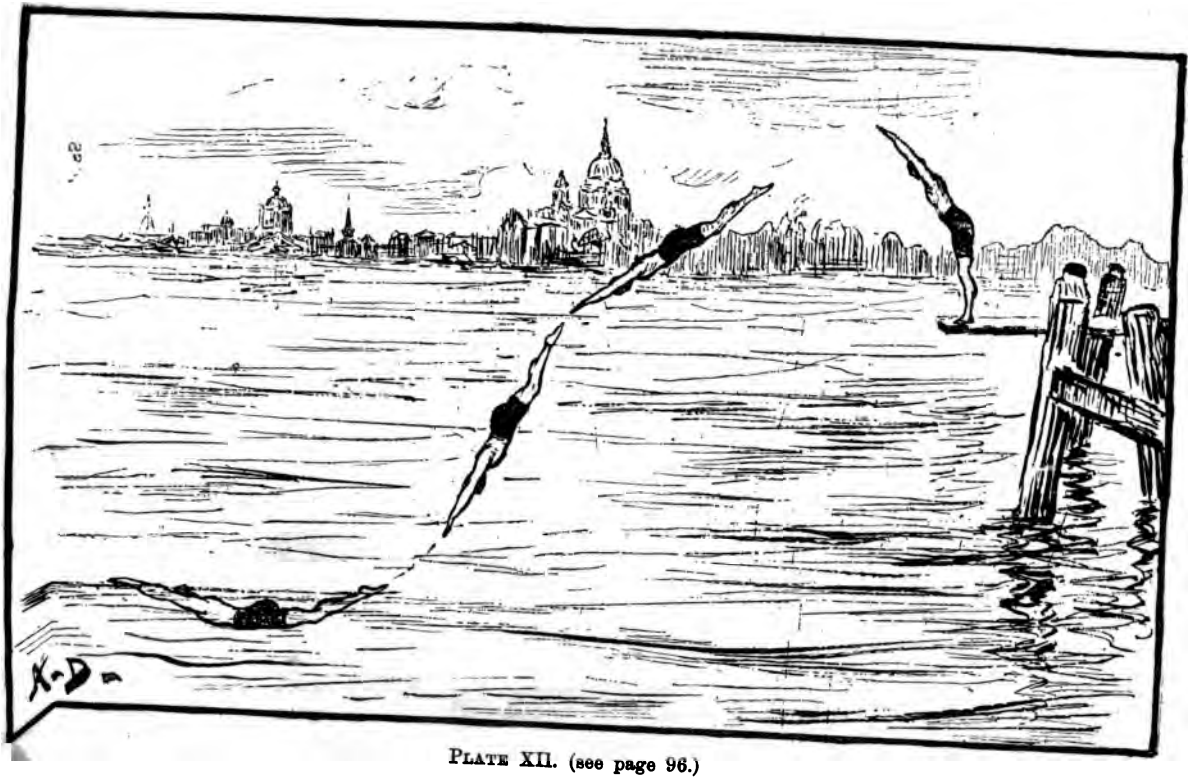


PLATE XII. (see page 96.)

and prudence may make them still less numerous than they have been.

Jumping into water feet first, no matter from what height, is a meaningless, stupid, and cowardly performance. Unless to pick up an object that may be almost directly under the spot from where the spring is to be made, it is of no real use. It is neither elegant, useful, nor graceful, and is indulged in, as a rule, by those who lack the courage to go off head first.

Breath is life; without a regular and plentiful supply of fresh air the lungs and heart become charged with blood that is full of carbonic acid, and instead of life sustaining fluid being in these important organs, they are actually being poisoned by the presence of the carbonic acid, and the absence of oxygen. If this state of matters continues for any length of time, the heart's action ceases, and everyone knows what follows.

It might be as well at this juncture to explain that, in order to make the stay under water in "long," "distance," or "object" diving, easier, safer, and pleasanter, it is imperatively necessary to have all vitiated or partially used air expelled from the lungs, that its place may be filled with as much pure and highly oxygenated air as possible.

This emptying of the lungs is easy of accomplishment. A long exhalation takes place and all, or nearly all air is for an instant pressed

or squeezed out of the lungs by contracting the chest.

A number of quiet, but not sudden inspirations are then taken. After about half a dozen of these breathings, a store of the precious concomitant of life is laid in, and the blood is supplied with oxygen sufficient to enable one to be under water a comparatively longer time than usual, without experiencing any desire to renew the breath, the duration of this time being longer or shorter in proportion to the capacity of the lungs, the care taken in laying in the supply, and the strength of the respiratory organs in the individual. The time may in one individual not exceed forty or fifty seconds, and in another may reach two or three minutes, as has been already instanced. One can practise the inflation of the chest without going into water on each occasion. When inflating for a dive the head should be leaned well back, the chest opened up, and everything which tends to excitement or undue quickening of the heart's action must be avoided.

After what has just been said, we do not think any further instructions necessary for time or distance diving, unless this, that the swimmer must move with the greatest celerity of action when under the surface. All swimming under water is done on the breast, and the arm stroke may be longer, by reaching the hands farther round towards the feet than while on the *surface.*

IN OBJECT DIVING several modes of procedure are adopted by different performers. Some choose to traverse the bottom of the water when in search of the objects, in a series of straight lines, while others move about without regard to any rule.

We advise that, on entering the water in search of a number of objects that are lying on the bottom, one should strike to the right or left as he may think best, but that he describe a circle nearly outside of where the objects are, this circle to be diminished spiral fashion until the centre has been reached, and if the face has been close on the bottom of the water and the eyes actively employed, the objects must have been seen, and if seen picked up we should say.

One special recommendation in favour of this method is that the diver does not lose himself, he will not swim away from the objects of which he is in search, and he will emerge always within the radius of the circle he has arranged to describe.

Competitors in object-diving matches should have a small pocket sewn in their pants, into which, as each object is lifted, it is put, and the free use of the open hand is thus obtained, and when moving along on the bottom this is of material consequence.

CHAPTER XVI.

ANGLING ACCIDENTS.

IT is quite an acknowledged understanding among those who practise the gentle craft, that they must, when wading, exercise the utmost care, not only in order to pursue their favourite art with the greatest hope of success, but under the impression that, equipped as they are with the usual paraphernalia of fishing stockings, boots, and heavy clothing, they must, should they step into a deep part, inevitably go to the bottom, and stay there; and further that no knowledge of swimming can be of any service.

Such an idea is simply erroneous, no weight of clothing or long boots will harass a swimmer to such an extent as to sink him. With a suit of clothes on, it can scarcely be expected that one will move about as freely or nimbly through the water as when naked; but the additional weight of the heaviest suit when immersed is surprisingly small — and beyond the slight inconvenience of being hampered a little in the movements, there is no other drawback to be feared.

In order on one occasion, when the subject was

under discussion, to fully convince some angling friends, we, in their presence, jumped into deep water fully dressed, with the heaviest boots, stockings, coat, &c., that are worn, and without letting go the rod, or loosening the basket, swam about; keeping everything in its place, and afterwards, lying still, made the rod an apparent means of support on the surface.

Before leaving the water, boots, stockings, coat, and all were removed while lying on the back, and quite a new era seemed to have dawned upon the minds of those who were looking on.

So, now! disciples of the great Walton! think more of your nibble and your many and varied lures than of danger to yourselves, as far as drowning is concerned, assuming of course, that you possess a knowledge of the principles of our art.

A friend recently informed us of a narrow escape made by himself once when fishing. Having stepped from a rock into a deep part, he went down more suddenly and deeper than he intended. In an instant he whipped his rod and line upward right over his shoulder, the hook caught in some part of the bank, and without having recourse to swimming at all, he had the satisfaction of quietly and gently pulling himself hand over hand along the rod and line until he reached the edge, and all by means of the grip which the line had in the roots of some hedge. So, apparently, a cast may with advantage be made in such a way as to quite reverse the usual order

of events in this connection. We give the tale for what it may be worth, and will be pleased to know that as a hint it may prove serviceable to someone who may find himself in any similar position.

We are surprised to know that, as a rule, ardent anglers are ignorant of an art which they know may be called into requisition at almost any time, and in many circumstances, and a knowledge of which would add to their pleasure and safety when enjoying their favourite and attractive pastime.

CHAPTER XVII.

ICE ACCIDENTS.

TOO many fatal accidents occur during the skating season, and such a large percentage of the number are in our opinion, preventible, or can be made amenable to skill and forethought, that we consider a few words on the subject may not be beyond our province at the present time.

The theory has, times without number been advanced that it is most difficult, if not altogether impossible for a swimmer with skates on to help himself, or render assistance by swimming in case of accident on the ice.

The impression has gained ground from the fact that it is to be found over and over again in print: and so the mistake has been allowed to go on repeating itself until it is, strange as it may seem, looked upon as an almost incontrovertible fact.

Not long ago, when on the ice, we had occasion to recur to the subject, and were assured by some good swimmers who were in our circle, that while they would have no hesitation in jumping into water to

help anyone in ordinary circumstances, so much were they impressed with the apparent truthfulness and plausibility of the theory as to the weight of skates on the feet, that they would think twice before trusting themselves in the water in order to render assistance to one who had fallen through the ice.

We could not understand why there should be any difficulty in the matter, and so proceeded to a bath; dressed in an old suit of clothes, put on heavy lacing boots, and with skates firmly adjusted, jumped into the water at the deep end, and swam the entire length of the bath, 75ft., with the greatest ease.

The feet certainly did incline to sink a little, but it is worthy of note that we had on a pair of Acme skates, and they, as is well known, are made wholly of metal. Had there been wooden soles, as in the other makes of skates, the feet would have had greater floating power.

Treading was easy of accomplishment, so also was back swimming. In the sculling movements the feet sunk a little. Motionless floating was not quite so easy of accomplishment, but, by bending the knees outward and bringing the heels close together up to the body, and leaning head and shoulders well back, we lay quite still on the surface.

Since this first experiment, we have many times shown that the whole thing is practical and easy.

By lying on the back and bringing the one foot over the opposite leg, the skates may be taken off.

Once the foot is in the position just mentioned, reach down the one hand, sculling or paddling with the other, and loosen the straps, or press the lever or spring as the case may be, and once the skates are removed, any swimmer should surely consider himself safe.

It is quite common to read or hear of how, when one who had gone through the ice got to the edge, and endeavoured to climb up, it gave way, and death by drowning was the result. We should like to offer one word of advice as to how one had better act in such an emergency. If the skater goes into a hole, he need not make any effort to lie on his back, but keep in a perpendicular position by treading, having hands and arms under water to assist the operation, and keep head and face clear. Let him now look round for the thickest edge and the part freest from cracks.

Once the mind has been made up as to where the essay to get out is to be made, get close to the spot, reach hands and arms as far on the ice and beyond the edge as possible, then by means of a strong but by no means jerky movement of arms, shoulders, and legs, lift the body upward and forward in one motion. The impetus of this lift and kick will, unless the ice is very weak, carry one a distance of at least three or four feet clear of the edge. The body being prone, its weight is distributed over a large surface, and there will be little likelihood of its breaking the ice.

The experienced skater knows, once he has got thus far, that to rise to the feet must be done on the move. Should one, when hanging on to the edge of the ice, feel as if the feet were likely to be drawn under, the probability will be lessened if he beats the water with the top part instead of the soles of the feet.

It is imperative that at all skating ponds there be an abundant supply of floats, buoys, ice ladders, boat hooks, cork jackets, ice rods, coils of rope, with lighted lamps beside them at night and in foggy weather. And skaters would do well as a matter of caution in their own behalf, as well as to be ready to render assistance to others, to make themselves acquainted with the whereabouts of these appliances.

Were the least ordinary precautions taken, we feel convinced the lists of winter casualties would be very much decreased.

CHAPTER XVIII.

TRAINING OR PREPARATION FOR MATCHES.

THE forming or accustoming to exercise by practice, development of the physical powers by regimen and diet, is accomplished and carried on in many different forms. The method of preparation or development, as understood not a great many years ago, was quite different in its character and in its execution from what is practised when making ready for a match, or trial of skill and strength or endurance, at the present time.

The old style of reducing a man by physicking, purgings, sweatings, and bleedings, to a living skeleton in order to build him up afresh, was positively disgraceful and cruel, and its continuance can only be accounted for by the fact that training and preparations of this description were practised by, and confined to a class ignorant of education in the ordinary meaning of the word, and that not many, if any, persons of refinement paid attention to, or took any interest in the way by

which a man was prepared for any great or special effort.

Within the past fifteen years, and with the formation and establishment of clubs devoted to amateur athletics, and the practical interest that is being taken in all that pertains to physical education by those moving in the higher social and educated spheres, the question is now receiving more attention, and an improved order of things now prevails.

There has at all times been, and there still is, much diversity of opinion, even among the best acknowledged authorities on the subject. There are so many ideas as to the practical details, the treatments adopted so opposite and contradictory as to food, clothing, and exercise, that one must approach the subject with care.

One trainer differs from the other as to whether cotton or wool should be worn next the skin during the period of preparation. One authority recommends total abstinence from stimulants or excitants of whatever description, while another is of opinion that the sparing use of good wine and ripe old ale is to be recommended. The most contradictory and conflicting advice comes from the different leaders as to the nature of, and quantity, and most suitable times for, exercise.

As doctors differ, so do those under whose charge men are put, on the understanding that they are by a certain date to be ready and well to engage in some

trial of skill, or strength, or both, in which money and reputation are at stake.

In training, as in ordinary life, what is one man's food is another man's poison. We are of opinion, therefore, that no hard-and-fast rules, such as might be committed to print, can be acted upon with confidence or hope of success in even a generality of cases.

The constitution, ordinary routine of life, whether sedentary or active, or in what degree, along with the temperament of the individual, are important factors to be considered, and the diet, exercise, and clothing must be prescribed and moderated in accordance with knowledge and observation.

To insure success, or even safety, we are of opinion that for a period preceding the time set apart for beginning the training, the person to be got ready should be under the care of a medical man, and the doctor's advice should, to a large extent, regulate the course of treatment.

There can be no doubt that judicious training and proper exercise balances, knits, and hardens the human frame for any trial of endurance or effort. Still, it has been proven, times without number, that injudicious or unskilful treatment has resulted in the most unlooked for and disastrous effects, not only in failing to bring the desired conditions of body, but in completely shaking and undermining constitutions. We know of many instances where men who were naturally strong and healthy, and whose names

were like household words for the position they occupied in athletic circles, by unskilful or careless training have been reduced to disease, and died prematurely old men.

Too often we find it to be the case, that men who have earned distinction and honour in some one branch of physical exercise, on retiring crowned with well-earned laurels, are looked upon, and consider themselves as the proper persons under whose care to place aspirants to honour, not only in the particular branch of sport in which they themselves excelled, but in any case in which training or preparation is required. Do we not also find that, no matter what the constitution of the man under preparation, the same unvarying line of procedure is adopted as that which the trainer in his "palmy" days had to undergo, and very often, to the surprise of all concerned, this is gone through with results the very opposite of what is required, expected, or hoped for.

The trainer would find it an interesting, instructive, and successful part of his business, to make a matter of careful and exhaustive study of the natural temperaments and habits of those put under his charge, and if at all intelligent he would soon see the importance and benefits of tempering the work to the requirements of each individual.

Nor would the study be too bewildering: for instance, the person of *sanguine* temperament will be known as generally having a clear skin, and being

well coloured, with healthy cheeks, and clear eye. As a rule, such an one is vigorous, active, lithe of muscle, and with tissues well built.

The *lymphatic* is fair, with pale skin, slow in movement, not easily affected or excited, and having a mind opposite to that of active.

The *nervous* is known at once by a restlessness of manner and of movement, generally spare of body, good worker, but too often fond of changes in diet, scenery, and occupation, easily elated, and quite as easily depressed.

The *bilious*, with dark hair, dull heavy skin, which has the appearance as if it always wanted washing, and still never looks clean or transparent. Easily excited, temper uneven, digestive powers easily deranged, body inert, surprisingly dull in spirit especially if the stomach is at all out of order.

The most easily brought into form, it should be noted, are those inclining to sanguine and nervous; the worst to bring to anything like condition being the bilious.

The person of sanguine temperament, as a rule, makes flesh rather easily; and on that account should have regular work, and more of it than any of the others.

The bilious man requires more powerfully laxative food during the period of training, and all the more must his nourishment be looked to. He should have a very sparing use of vegetables as food.

The lymphatic requires much pushing as a rule, and must be kept close at whatever work is laid out for him.

The nervous person requires a more than ordinary cheerful companion all the time. As the day of the race draws near, he must be kept lively, and all tendency to depression of spirits carefully warded off, and his chances of success constantly kept before his mind.

Such notes of peculiarities in individuals help the trainer very much, and it will be at once understood that no one set of either oral or written instructions can be expected to meet each individual case.

The trainer to be successful in his avocation should be possessed of a fair amount of general knowledge; be intelligent, firm, yet considerate, and of a cheerful temper, and he should do everything in his power to allay any feeling that he is a taskmaster.

The question of food, its kind, its cooking, its administration, its uses and abuses, its effects in so many respects in preparing a man for any kind of work, mental or physical, is so important as to make it imperative that the trainer have a knowledge of the varieties of the several food stuffs, their assimilation and distribution in the economy of the system, and also the best means of preparing and cooking them. With the proper use of the most suitable diet, much hard, and we might almost say, unnecessary work will be dispensed with, and the season of preparation will

become more in accordance with the laws of health, will be pleasanter, safer, and cease to be looked upon with so much mystery and uneasiness.

Many times we find that, no matter how careful the trainer may be, the novice will, to gratify his appetite or pleasure, be guilty of some indiscretion in eating, drinking, or otherwise, which, although apparently trivial, will upset, or to a great extent undo, much of the work that may have been so far accomplished. It is very hard to have charge of such a person and to be held responsible for his condition. In cases of this kind the work of the person in charge is hard and irksome; his mind is always on the rack; day and night he must watch his man as though he were a baby, and this for weeks at a time is a severe strain on one. That such cases are often recurring, the history of sport too plainly bears witness.

No matter how clever, how painstaking, how self-denying the trainer may be, how secondary a part his own comfort is to that of the trainee, unless his every effort is seconded and his instructions faithfully carried out by the person under treatment, there can be little hope of ultimate success, and the person who is guilty of such foolishness, no matter how clever in his particular branch of athletics he may be, is deserving of strong condemnation, and is utterly unworthy of even the smallest and least important niche in the Temple of Fame.

With the foregoing thoughts in our mind, we shall, in

as general a manner as possible, offer some observations which may be of assistance to those who aspire, whether as amateurs or in a professional way, to natatorial or aquatic honours, and either when under a trainer or when taking care of themselves.

We would begin by giving it as our opinion that the habit, which seems to be gaining ground, of shortening the period of preparation to anything less than five or six weeks, is mischievous, and means in many instances a too sudden change from ordinary life to extremes in work and other details. Any sudden change from the customary or usual mode of living cannot be conducive to health, strength, or activity, either of mind or body.

The natives of ancient Greece appear to have been fully alive to the importance of accustoming the body by degrees to the new life. The Greek athlete had ten month's preparation to undergo, in order to develop the different functions of the body for the work in connection with competitions in the games or contests, which were carried on with so much pomp and ceremony in the chief provinces and principalities of that once mighty nation.

Whether the time allotted for training be long or short, it is essential that in the beginning the stomach be regulated, and put in perfectly healthy condition, so that all foods taken will yield, by the proper functions of good digestion, the nutrition necessary to maintain to its greatest extent all vital force and muscular power.

No matter how carefully one may set to work in preparation, if the stomach is in any way deranged, the spirits and general health is interfered with, and one is soon made aware that the body cannot be brought to the requisite condition, no matter how great the effort, and when too late he will discover that that which should have been the initiatory step has to be taken at the eleventh hour, and as a matter of course under the most dispiriting conditions.

It is necessary then, that the system be cleared of all impurities, not by heavy doses of salts, or courses of sweatings and cupping as in the older training system, but by the judicious administration of gentle laxatives given in such a way as to allow of the preliminary exercises being in no material way interfered with.

Walking exercise in the early stages, and all along during the period of training, is to be gone on with. Perhaps of all the work this is the most cheerful and healthy; it strengthens the lower limbs. The chest and lungs are expanded and also strengthened, and, to improve the wind without any other of the more violent exercises, we know of nothing so well adapted to the purpose.

The distance to be walked may be from fifteen to twenty miles a day, and at the beginning need not be made very hard work.

This walking should be done in ordinary clothes—woollen tweeds are most preferable, and worsted socks

or stockings had best be worn. The boots should have low heels and broad flat soles, and be either laced or have buckles; elastic fitting is not to be commended. The route for the walk may be changed from time to time, so as to afford a change of scenery, if this is at all desired by the person under training.

Running distances of from three or four hundred yards to one mile is of great benefit, and should be gone on with at a time of day to suit the circumstances or fancy or convenience.

Spiked running pumps should be worn, and all running done in light costume or "tights." The spring should be from the ball of the foot, but any pedestrian will give the proper instructions as to the correct movements and positions of limbs and body while walking and running.

Sometimes a pain or "stitch" in the side is felt when starting these pedestrian exercises, in which case one should stop, or move more slowly along. The part should be bathed with cold water on rising in the morning, and rubbed with a towel until the friction has produced a glow of heat over the part where the pain was experienced. The feeling will, however, grow less and less, and at the end of the first week's practice will quite cease.

Should the feet be inclined to blister or become tender, we know of nothing more likely to heal them and prevent chafing than bathing in hot sea or salt water for about fifteen or twenty minutes at a time,

and immediately before retiring at night. Early to bed and early to rise must be a standing rule. To bed about nine or ten o'clock at night, and up not later than six in the morning. This is the rule with almost all trainers, and there is very little, if any, difference of opinion on this part of the subject. A mild spray, or shower, or douche, or, in the absence of these appliances, a sponge bath should be had on leaving bed in the morning, and the whole surface of the body must be carefully rubbed down and dried. This morning tub is cleansing, is a bracing tonic for the nerves, and is also in every sense of the word a muscle hardener. A small hard biscuit or piece of dry toasted bread, with a switched egg and a little milk, will be found very acceptable after the bath, and a walk of five or seven miles may then be gone on with.

Some advocate running in the morning, but if there is plenty of time, the walking will be the most agreeable and less violent exercise before breakfast.

The running may be done in the forenoon, and all heavy sweating and hard work should be gone on with between breakfast and dinner.

The great thirst so often experienced, and which is very annoying in the early stage when the body is being reduced, must be borne without much grumbling. It would be the height of imprudence to seek to allay it by drinking water, or, in fact, any beverage. Some people keep small white pebbles for putting into the

mouth when thirsty, and these for a brief period afford some slight relief.

The mouth may be washed, and the throat gargled with tepid water, into which a very little tartaric acid has been dissolved, but none of this is to be swallowed. We know a trainer who, when he allows his charge to wash his mouth with this, does so from an apothecary's crystal measure, and into another similar vessel the water has to be returned after it has served its purpose. He is thus enabled to know to a nicety whether any water has been swallowed, and how much.

In addition to running and walking, there should be plenty of exercise with the Indian clubs, dumb-bells, and skipping rope. The first-mentioned are much to be praised, as being excellent adjuncts to the usual methods of reducing fat to muscle. The "forward" and "backward" right and left swings, and "moulinet" movements tend to strengthen arms, shoulders, neck, and mid-body. Professor Harrison says of the clubs that "they strengthen the legs partially, the loins greatly, and the muscles of the arm and back enormously." Sim De Kehoe, of New York, an eminent authority on the subject, gives it as his opinion that "they are unsurpassed by any other kind of apparatus, and half the fixtures of an ordinary gymnasium will not produce such a general development of the muscles from the loins upwards as a pair of clubs."

Whether in training or not, these words are sufficient

to make it plain that all who aspire to excel in swimming should have regular practice with Indian clubs.

The "forward," "stooping," and "perpendicular" movements with dumb bells are also of great service in assisting to strengthen and develop muscle.

The skipping-rope exercise is of surprising importance as being a pleasant change, and while by regular motions the muscles of feet and legs are being developed, the lungs are having good and wholesome employment given them.

Whistling and singing serve to keep off all likelihood of congestion in any part of the system while the more violent exercises are being gone on with.

As to swimming practice, when to be done and how often, depends on the distance for which one is more particularly making preparation. If a hundred, or up to three hundred yards, it will not be at all out of order to swim the distance twice a day.

If the distance is one or two miles, three times a week will be quite often enough. The amount of swimming practice depends, however, on quite a number of circumstances, and each must be carefully considered. The constitution, what kind of practice one has been accustomed to, whether the swimming is to be in fresh water, in a bath, a river, a lake, or in the sea, are all important items, and one cannot be too careful in their consideration.

A long distance in a lake is quite another thing from the same distance in a tepid bath; while as

great a difference is sure to be experienced between fresh and sea-water swimming. It must also be observed, too, that quite an opposite condition of the bowels exists in the different conditions just mentioned, and in proportion to these conditions must the swimming practice be regulated.

During the last week's training the work should be slackened down, and for the last two days there should be no excessive or violent work done at all.

We must also offer our remonstrance to the old habit still in many quarters being continued, of swimming the trial at almost the last moment. This is especially to be condemned if the distance is at all great. The trials should have been finished at latest by the beginning of the last week. It is too much of a strain a short time before the race, and if at all regular in habit or style, quite as much should be known as to pace, &c., as can be demonstrated, too often to satisfy whim or curiosity, six days previous to, as one or two days before the date of the race. During the last three or four days attention should be paid to prevent any difference in weight, while muscles and all functions must be kept in good play, lungs clear, eyes steady, skin polished and bright, tongue clean, whilst all liability to chill or become cold must be strenuously guarded against. There should be no exercise on the day of the race, and if one feels at all inclined for ease the whim should be gratified. He should be kept warm and

comfortable, and be allowed to lounge about or even lie in bed until the time for getting ready for the coming effort.

In training for a swimming match there is this difference in the preparation from that of running and walking—that the man must not be got ready too "fine." If the distance is above five hundred yards, there must be some fat and red blood left to combat the cold water.

In sprint running, some trainers bring their charges down almost to a shadow; keeping of course the lungs clear, and having all, or nearly all the development in the legs. These same trainers apparently consider this style of preparation applicable to all cases, and too often have we seen the swimmer in what he considered the pink of perfection, when his appearance should have been altogether different. Swimmers must guard against such a course of preparation, and bear in mind that the body, instead of by quick motion increasing its temperature, being in an element colder than itself, will be giving off or parting with this heat; and what warmth is not being given off is, by the action of the cold water on the skin, being impelled inward.

As diet plays such an important part in the preparation of the system for any effort, we subjoin a table showing what is good and what objectionable as food in this period of training, and independent of what is known as strict training, those who wish to keep well

will, no doubt to some little extent, at least form an idea from this list of what to eat, drink, and avoid.

Objectionable.	Good.
Bacon.	Bread two days' old.
Butter of all kinds.	,, toasted.
Cheese.	Chicken.
Cold water.	Biscuits, plain.
Herrings of all kinds.	Beans, Haricot.
Gravies.	Cocoa.
Kidneys.	Eggs, raw whisked.
Lamb.	,, soft boiled.
Meat, stewed.	,, poached.
,, minced.	Fruits, ripe.
,, baked.	Haddocks, boiled.
,, salted.	Mutton, broiled.
,, potted.	,, roasted.
Pastry.	Potatoes, boiled.
Pork.	Prunes, stewed.
Salmon.	Puddings, light.
Soups.	Rhubarb, stewed.
Tea.	Steak, broiled.
Veal.	Whitings, boiled.
Lettuce.	,, fried light.
Cabbage.	Oysters.
Cauliflower.	White fish.
Radishes.	Red fish.
Shrimps and shell fish.	
Onions and leeks.	

Let all meals be as nearly as possible equal in quantity and nutrition, or, at all events, avoid the light breakfast, heavy dinner, and almost no supper. The work is equally divided over the whole day, therefore it is necessary to supply nourishment to counteract the waste that is continually going on. There should be a little animal food at every meal, and not much vegetables or green stuffs, as these distend the

stomach too much, and interfere with digestion by diluting and weakening the gastric juices which assist to such a large degree in the process of digestion—that healthy digestion which waits on appetite.

In reference to rubbing, we would quite ignore the use of the flesh brush or glove, and use the hands instead, and especially should this be the case when preparing for a swimming match.

Friction or rubbing in swimming preparation is used for two purposes, and these are—to improve the circulation in the skin, and to exercise the muscles, and this is better to be done by means of the hand. Sir Erasmus Wilson says: "The hand is a sentient rubber, a rubber endowed with mind; it knows when and where to rub hard, where softly, where to bend here or there, into the little hollows and crevices where dust is apt to congregate." Instead of dry rubbing in the morning, we would recommend that it be done in the bath, and with soap and water. Soap is recommended as tending to a healthy epidermis. No one need be afraid of its irritating the skin. When soap irritates the skin, that covering of the body must be in a condition the reverse of healthy, and this implies that there is something wrong under the surface. Soap does not chafe or hurt the delicate skin of infants, and, as a rule, nurse washes her precious charge twice a day. Dry rubbing, if at all carelessly done, chafes the skin, and very often we find excoriations on the sides of the chest, on the ba[illegible]

and on some parts of the legs, caused by rubbing when the hands are damp, or when there may be a moisture, no matter how slight, over the parts of the skin.

In all rubbing, particular attention should be paid to exercise gentle and kindly, yet firm, pressure all down the back of the legs, the loins, and groins, the shoulders, the arms, and along the spine from the neck downwards.

No one who has not experienced this rubbing can form even an approximate idea of its almost magical effects. It causes a feeling of elasticity and life, and after it one craves for an opportunity of using his limbs, and experiences the greatest freedom in any exercise in which the muscles are brought into full and active play.

In connection with rubbings several embrocations were constantly, and are even sometimes now used, but are being discontinued. Bathing, the use of good pale soap with not too much alkali in it, and skilful rubbing are now taking the place, and fulfilling the offices that were at one time thought to be inseparable from some of these stinking and disagreeable liniments. One thing is plain, that in swimming preparation, their use is foolish and unnecessary.

Repeated and regular washings of the mouth, and cleaning of the teeth before and after meals and all heavy practice, should be paid attention to. Clean towellings used; well ventilated rooms and beds that are being regularly aired must be insisted on.

In order to more effectually benefit by the course of training through which one has passed, and prolong life, there should be no sudden dropping of the training system, and especially should he be careful to avoid that sudden plenary indulgence to which some are apt to give way after the somewhat strict living of the few weeks preparation; as one goes into training life gradually, so must he, if he will not continue it, be even more careful to taper from the strict regimen to that which should, all things considered, be not too dissimilar.

If one is careful in these particulars during his racing career, he will attain the higher position, and will have no occasion for any extreme treatment at all, his mind and muscles will be always ready to do what may even in a hurry be required of them.

Going into training and suddenly dropping off again is most injurious, and such a manner of carrying on a career in any branch of sport should be condemned in the strongest and most emphatic terms. It brings an army of evils in its train in the shape of diseases of the heart and lungs, and predisposes to consumption, congestion, and apoplexy.

With the regular and temperate athlete all this is reversed, and he is happy, cheerful, healthy, hardy, and well, and a living example of the benefits of an active life with a fair amount of physical exercise—exercise not devoted entirely to the development of one set of muscles to the exclusion

prejudice, and lessening of others, but to all parts of the body, balancing and proportioning in appearance and power every portion of the frame, for only a man whose body is healthy and well formed in every particular can be called perfectly developed. This happy and satisfactory state of matters can only be acquired by temperate and well-regulated habit, and excesses of every kind avoided. One must be temperate in all things, in food, in drink, in exercise; an undue strain on any one of our functions tends to enervation and enfeeblement, while a judicious and sensible use of our opportunities will result in health, long life, and happiness.

CHAPTER XIX.

LIST OF ENGLISH PROFESSIONAL CHAMPIONS SINCE 1854.

1854 F. E. Beckwith of London
1855 Ditto.
1856 Ditto.
1857 Ditto.
1858 Ditto.
1859 Ditto.
1860 No race.
1861 No race.
1862 E. B. Mather of Manchester
1863 E. B. Mather and F. E. Beckwith
1864 E. B. Mather and Harry Gurr
1865 Harry Gurr [of London
1866 Harry Gurr of London
1867 Ditto.
1868 Ditto.
1869 Ditto.
1870 Ditto.
1871 J. B. Johnson of Manchester
1872 Ditto.
1873 Ditto.
1874 E. T. Jones of Leeds
1875 Ditto.
1876 Ditto.
1877 Ditto.

FIVE HUNDRED YARDS CHAMPIONSHIP. Organised by Mr. Robert Watson, of London, in 1876. Prize, Silver Cup.

1876 ... Sept. 12 ...	W. Beckwith	Swum in	Wenlock	Baths.
1877 ... Sept. 11 ...	J. B. Johnson.....	Ditto.	ditto.	
1878 ... Sept. 3 ...	J. B. Johnson.....	Ditto.	ditto.	
1879 ... July 21 ...	W. Beckwith	Swum in	Lambeth	Baths.
1880 ... Sept. 27 ...	W. Beckwith	Ditto.	ditto.	
1881 ... Aug. 20 ...	W. Beckwith	Ditto.	ditto.	

WINNERS OF ONE MILE AMATEUR CHAMPIONSHIP
Since its organisation in 1869.

Date.	Winners.	Where Swum.
1869 ... Aug. 21 ...	Tom Morris	Swum in River Thames, course from Putney to Hammersmith.
1870 ... Aug. 27 ...	Harry Parker.....	
1871 ... July 22 ...	Ditto.	
1872 ... Aug. 21 ...	Ditto.	

1873 ...	Aug. 25 ...	Dave Ainsworth ...	Hendon Lake.
1874 ...	Aug. 25 ...	Horace Davenport .	Ditto.
1875 ...	Aug. 24 ...	Ditto. ...	Crystal Palace Lake.
1876 ...	Sept. 9 ...	Ditto. ...	Hendon Lake.
1877 ...	Aug. 11 ...	Ditto. ...	Hendon Lake.
1878 ...	Aug. 10 ...	Ditto. ...	Crystal Palace.
1879 ...	Aug. 9 ...	Ditto. ...	Hendon Lake.
1880 ...	Aug. 14 ...	J. P. Taylor	South Norwood Lake.
1881 ...	Aug. 13 ...	Ditto.	Elstree Reservoir, Herts.
1882 ...	Aug. 19 ...	Ditto.	Edgbaston Res., Birm.

FIVE HUNDRED YARDS AMATEUR CHAMPIONSHIP OF ENGLAND. Prize, Silver Cup. Instituted and Managed by the North London Club. Swum in the Wenlock Baths, London.

Winners.

1878	Aug. 20	J. P. Taylor of Newcastle.
1879	Aug. 26	E. C. Daniels of London.
1880	Aug. 24	E. C. Daniels.
1881	Aug. 23	E. C. Daniels.
1882	Aug. 28	E. C. Daniels.

LORDS AND COMMONS RACE, OR LONG DISTANCE AMATEUR CHAMPIONSHIP OF GREAT BRITAIN. Swum on River Thames; distance, 5¼ miles. Prize, Large Silver Cup. Course from Putney to Westminster Bridge, or *vice versa*.

1877	Horace Davenport	Time	1h. 13m. 30s.
1878	Ditto.	,,	1h. 16m. 10s.
1879	Ditto.	,,	1h. 22m. 30s.
1880	W. R. Itter	,,	1h. 18m. 15s.
1881	W. R. Richardson	,,	1h. 21m. 33s.
1882	F. W. Huntington	,,	1h. 21m. 0s.

SCOTTISH CHAMPIONS SINCE 1858.

1858 ...	Geo. Sloss of Carmyle.....	350yds. ...	R. Clyde, Glasgow.
1859 ...	Jas. Sneddan of Carmyle...	,, ...	,,
1860 ...	Ditto. ditto. ...	,, ...	,,
1861 ...	Ditto. ditto. ...	,, ...	,,
1862 ...	Ditto. ditto. ...	,, ...	,,
1863 ...	Ditto. ditto. ...	,, ...	,,

1864 ...	Jas. Reid of Glasgow	.....	½ mile	...	Pitt-street Baths, Edinburgh.
1865 ...	Ditto.	.....		...	„
1866 ...	Ditto.	.....	350yds.	...	R. Clyde, Glasgow.
1867 ...	Ditto.	.....	„	...	„ „
1868 ...	Ditto.	.....	„	...	„ „
1869 ...	Ditto.	.....	„	...	„ „
1870 ...	Ditto.	.....	„	...	„ „
1871 ...	Ditto.	.....	„	...	„ „

HALF MILE CHAMPIONSHIP OF SCOTLAND. Prize, Silver Cup. Presented by the Associated Swimming Clubs of Scotland.

1875, July 31. Won by T. S. Wylie of Glasgow; Firth of Forth, Granton.
1876, July 29. Won by Robert Wilson of Glasgow; Firth of Clyde, Greenock.
1877, July 28. Won by Robert Small of Dundee; Firth of Tay, Dundee.
1878, Aug. 3. Won by James Ferguson of Paisley; River Dee, Aberdeen.
1879, July 26. Won by Robert Wilson of Glasgow; Firth of Forth.
1880, Aug. 7. Won by Robert Wilson of Glasgow; Firth of Clyde.

QUARTER MILE CHAMPIONSHIP OF SCOTLAND. Prize, Silver Cup. Presented by the Bon Accord Club, Aberdeen. Swum in New Channel, River Dee, Aberdeen.

1873 William Ross, Aberdeen.
1874 William Burnet, Aberdeen.
1875 William Ross.
1876 James Ferguson, Paisley.
1877 Ditto.
1878 Ditto

NEW CUP.

1879 James Ferguson.
1880 Alex. Mollison, Dundee.
1881 James Ferguson.
1882 James Ferguson.

THOUSAND YARDS CHAMPIONSHIP OF SCOTLAND. Prize, Silver Cup. Swum for in the Public Baths, Dundee.

1880 ..... Alexander Mollison, Dundee.
1881 ..... Robert Bertram, Edinburgh.
1882 ..... William Forwell, Dundee.

LADIES' CHAMPIONSHIP OF SCOTLAND. Prize, Silver Cup. Instituted under the auspices of the Glasgow Women's Swimming Association. Distance, 300 yards.

FIRST COMPETITION.—Alexandra Pond, Glasgow, July 3, 1880, Won by Miss Lizzie Gillespie.

SECOND COMPETITION.—Alexandra Pond, Glasgow, Aug. 28, 1880. Won by Miss Lizzie Gillespie.

THIRD COMPETITION.—London Road Baths, Glasgow, Aug. 10. 1881. Won by Miss Lizzie Gillespie.

LADIES' CHAMPIONSHIP OF THE TAY. Instituted by the Dundee Association of Open Air Bathers. Distance, 100 yards.

FIRST COMPETITION.—Sept. 8, 1880. Won by Miss Annabella McQueen.

SECOND COMPETITION.—Sept. 7, 1881. Won by Miss Annabella McQueen.

THIRD COMPETITION.—Aug. 31, 1882. Won by Miss Annabella McQueen.

CHAPTER XX.

WINTER RACES.

CHRISTMAS MORNING HANDICAP.—Swum in the Serpentine, Hyde Park, London. Distance, 100 yards. Organised in 1864 by the Serpentine Swimming Club.

1864 H. Coulter.	1874 J. Clark.
1865 S. Bullet.	1875 G. Adams.
1866 C. Whyte, sen.	1876 D. Ainsworth.
1867 J. Collard.	1877 A. Pearson.
1868 H. Ward.	1878 G. Tucker.
1869 T. Collins.	1879 G. Webster.
1870 W. Coulter.	1880 J. Delavante.
1871 A. Bullet.	1881 D. Ainsworth.
1872 D. Ainsworth.	1882 G. Tucker.
1873 T. Haslop.	

WINNERS OF NEW YEAR'S DAY RACE. Distance, 100 yards. Swum in River Clyde, Glasgow, on the first day of the year at twelve, noon.

Year.	Winner.	Time.	Temp. of Water.
1878	Robert Wilson	1m. 8s.	41 degrees F.
1879	Robert Hardie	41sec.	37 ,,
1880	William Quigley	37sec.	46 ,,
1881	Duncan Shaw	2m. 55s.	53 ,,
1882	Joseph Milne	33½sec.	40½ ,,
1883	Kenneth Kurr	37sec.	41 ,,

CHAPTER XXI.

TIMES AND DISTANCES OF GOOD PERFORMANCES.

QUESTIONS, bearing on the times that should be taken to swim given distances, are being often asked, and are as often answered in such a way as to be altogether unsatisfactory.

One might suppose that the correct answer would be to give the time taken by the best exponent of fast swimming when in his best form, or to give the best record performance at the distance.

Another might, taking the abilities if he knows them of the questioner into consideration, give what he considers might be good pace for him or anyone of similar powers.

One might again, under the impression that he is striking a "happy medium," mention the time taken by some well-known amateur.

Either of the answers would of course be quite correct, but at the same time bear no comparison with what the questioner had either heard of, read of, or perhaps seen accomplished.

Among amateurs, and even in professional circles, great diversity of opinion exists as to how such questions should be answered, and almost indeed as to what is really good, indifferent, or bad, or trustworthy time for even well-known distances.

In order to arrive at the true merits of a performance, quite a number of circumstances have to be taken into consideration, and not the least of which is, who is timekeeper, and what does he know of the starting and finishing of a swimming race? If in a trial in either long or short distances, especially the latter, it is of importance to know to a nicety even as to whether the watch or clock was quite trustworthy. One must also, in considering time, know whether the distance swum was in fresh or salt water, in a river or in a lake, across a stream, or in a strong or slow current, or in no current at all. If in a bath, was it long or short, and what was the length of it? Was the swimmer good, bad, or indifferent at touching and turning? Was he good at plunging, or the reverse? Was he in good form at the time? Was he trying his best all the time? and so forth. Many apparently good records have been shorn of their importance, and had the gloss taken off them, once the circumstances under which they were performed have been inquired into and reckoned up.

The history of swimming matches for heavy sums by our best men affords ample proof, if any are wanting, of the fallacy of pinning one's faith to figures

without due deliberation and calculation, and, times without number, cases like the following have occurred, and, as history is constantly repeating itself, are occurring now and are more than likely to happen again.

One swimmer learns that another has gone a given distance in a certain time. His own time for the same distance, even when out of form, he considers to be nearly if not quite as good; he knows that an improvement of so many seconds will enable him to beat this time, and in all probability the man of whom he has been hearing, and so far as can be seen, the making of a match should result in a certain victory.

A challenge is the result of cogitation and deliberation, an answer is received, the formalities of match-making are proceeded with. In due time both men are put into training. Rumours are afloat as to the improvement that has been made in the condition of both men, in style as well as pace. The day of competition arrives, both men are in the "pink" of perfection, fit and well. The race is swum, the challenger beaten, and when the official time, as taken by two or more trained clockers, of whose correctness and ability there can be no doubt, is looked at, it is found that the winner's time is slower than the figures which at the outset led to the making of the match. These figures were no doubt honestly enough given, and were quite in

accordance with time taken at some one trial, but as the sequel proved, by someone who must have timed on a principle that was wrong. Thus matches are made and finished, and money lost and won. That which was looked upon as a certain win by the one party going quite to the opposite side, and all through dependence having been put on time taken by no one knows who, and even if correct without the surrounding circumstances having been taken into account.

Nevertheless, it must always be a matter of interest to know the times taken by the best swimmers in their most important races, and in the list which follows it may be easy in some cases to arrive at conclusions, after tide and other considerations have been given.

In the longer distances, whether in river or in the sea, it will be noticed that great differences exist, and these apparent discrepancies are to a great extent due to the varying conditions of tide and current and wind. Of course it will be manifest that not much is to be learnt from the time given in such performances.

The arrangement of first, second, and third classes, as adopted by some clubs, will no doubt afford some interest, and also enable one to arrive at something like a standpoint from which to start in forming calculations, and conclusions as to time and distance, These classifications we will start with, and afterwards proceed with more notable performances.

ALLIANCE CLUB, LONDON.

CERTIFICATES.

FOR FIRST CLASS,—Members will be required to swim 20 lengths of the bath (540 yards) in 10m. 20s., and plunge 35 feet.

SECOND CLASS.—Swim 10 lengths of the bath (270 yards) in 5m. 30s., and plunge 30 feet.

THIRD CLASS.—Swim 6 lengths of the bath (162 yards) in 3m. 30s., and plunge 20 feet.

Each of these classes to float to the satisfaction of the judges.

OTTER CLUB, LONDON.

GOLD BADGE TESTS.—Members to swim 4 lengths of first class bath, Marylebone (97 yards) in 1m. 15s.

To swim 20 lengths of the bath (490 yards) in 8m.

LONDON SWIMMING CLUB.

FIRST CLASS.—Members to swim 900 yards in 18m.

SECOND CLASS.—Members to swim 450 yards in 9m.

THIRD CLASS.—Members to swim 180 yards in 4m.

ASSOCIATED SWIMMING CLUBS OF SCOTLAND.

CERTIFICATES.

FIRST CLASS.—Swim 500 yards in 10m.; plunge 35 feet; swim under water 100 feet.

SECOND CLASS.—Swim 250 yards in 5m. 20s.; plunge 30 feet; swim under water 80 feet.

THIRD CLASS.—Swim 150 yards in 3m. 30s.; plunge 25 feet; swim under water 50 feet.

The trials to take place in still water.

Some clubs classify their members in accordance with distance tests, the rule generally being,

For First Class, swim one mile.

Second Class, swim half a mile.

Third Class, swim three hundred yards.

The following records are given, not because they are in every instance the best, but because they are the most notable and interesting, and we think that the tables as here compiled may be found of service, and also be easy of reference :

Distance.	Time.	Date.	Locality.	Swimmer's name.
	H. M. S.			
100 yards	0 1 8½	Oct. 21, 1878	Lambeth Baths	E. T. Jones.
,, ...	0 1 12½	Sept. 18, 1882	Lambeth Baths	C. Depau.
,, ...	0 1 13¼	Oct. 6, 1879	.....	J. S. Moore.
,, ...	0 1 14½	May 1878	Marylebone Baths	Hunter J. Barron.
,, ...	0 1 15	July 29, 1872	Open water	William Cole.
,, on the back	0 1 24	Nov. 4, 1879	Rochdale Baths	J. M. Taylor.
,, ...	0 1 16⅗ (in costume)	July 1878	Lambeth Baths	F. E. Odell.
200 yards	0 2 46	Nov. 1872	North London Baths.....	T. Morris and Harry Parker.
,, ...	0 2 58⅖	Oct. 1877	Chelsea Bath	C. L. O'Malley.
220 yards	0 3 3¼ (in costume)	Dec. 8, 1882	Dundee Baths.....	John Haggerty.
300 yards	0 6 55	Aug. 28, 1880	Alexandra Pond, Glasgow	Lizzie Gillespie.
400 yards	0 6 33⅘	Sept. 16, 1878	Lambeth Bath	H. J. Barron.
440 yards	0 7 4 (in costume)	Aug. 27, 1877	Lambeth Bath	Horace Davenport.
,, ...	0 7 5	Aug. 1874	.....	E. T. Jones.
500 yards	0 7 8	Sept. 10, 1881	Lambeth Bath	W. Beckwith.
,, ...	0 7 39	Oct. 12, 1877	Lambeth Bath	W. Beckwith.
,, ...	0 7 43	Oct. 1881	Northumberland Baths, Newcastle	R. Todd.
,, ...	0 7 44¼	Aug. 1879	Wenlock Baths, London	E. C. Daniels.

Distauce.	Time.	Date.	Locality.	Swimmer's name.
	H. M. S.			
500 yards	0 8 4	Sept. 11. 1877	Wenlock Baths	J. B. Johnson.
Half mile	0 13 5	July 1874	Roundhay Park, Leeds	E. T. Jones.
,, ...	0 14 42	Aug. 3, 1873	River Lea	William Cole.
,, ...	0 14 43	July 26, 1878	East River, U.S.A., Yorkville	George Hohlman.
,, on the back	0 16 29	June 1, 1865	Serpentine	Harry Gurr.
One mile	0 28 18½	Aug. 4, 1877	Riv. Clyde, Glasgow (tide running)	Adam Moncrief.
,, ...	0 28 24⅘	June 22, 1872	Hendon Lake	J. B. Johnson.
,, ...	0 29 25½	Aug. 11, 1877	Hendon Lake	Horace Davenport.
,, ...	0 30 3	Aug. 1874	Serpentine, Hyde Park	E. T. Jones.
,, ...	0 30 11	Aug. 1873	Serpentine	J. B. Johnson.
,, ...	0 30 30½	Aug. 26, 1882	Hollingworth Lake	W. Beckwith.
,, on the back	0 39 30	Sept. 1871	North London Baths	Marquis Bibbero.
1000 yards	0 15 8½	Sept. 10, 1881	Lambeth Bath	W. Beckwith.
,, ...	0 15 31½	Sept. 7, 1874	Wellington-street Bath, Leeds	E. T. Jones.
,, ...	0 15 56½	July 8, 1876	Roundhay, Leeds	E. T. Jones.
,, ...	0 15 51¼	Sept. 13, 1879	Hendon	W. Beckwith.
2000 yards	0 34 30	Aug. 1873	Serpentine	J. B. Johnson.
Two miles	0 25 22⅘	Sept. 10, 1877	Thames	E. T. Jones.
,, ...	0 26 25	Sept. 13, 1873	Thames	J. B. Johnson.
,, ...	0 30 50	Aug. 29, 1862	Thames (tide running)	E. B. Mather.
,, ...	0 54 57¾	July 27, 1878	Harlem Riv., U.S.A. (sluggish tide)	T. E. Kitching.
Two miles 6 furl.	0 29 5½	Sept. 12, 1874	Thames (slack tide)	E. T. Jones.
Five miles	1 4 23	July 18, 1870	Thames (tide running)	Charles Whyte.
,, ...	1 20 7	Aug. 1880	River Tay, Dundee (tide running)	Miss Lizzie Gillespie.
Five miles 660yds.	4 59 30	Oct. 1, 1881	Hollingworth Lake (still water and very cold)	Matthew Webb.

Distance.	Time.	Date.	Locality.	Swimmer's name.
	H. M. S.			
Five & half miles	2 43 0	Sept. 9, 1875	In the sea, Brighton	Miss Dick.
Eight miles	3 52 20	July 31, 1881	Long Island, U.S.A.	Gustave Sundstrum.
Nine miles	2 24 30	Sept. 18, 1875	Thames (tide running)	Miss Emily Parker.
Ten miles	2 40 0	Aug. 24, 1875	Delaware Riv., U.S.A. (tide running)	J. B. Johnson.
,, ...	2 43 0	July 5, 1876	Thames (tide running)	Miss Agnes Beckwith.
Thirteen miles...	.....	July 22, 1875	Delaware River, U.S.A.	J. B. Johnson.
Eighteen miles...	5 58 0	March 1879	Yarra, Queensland.....	Fred Cavill.
Twenty miles ...	6 25 0	July 17, 1878	Thames (with tide)	Miss Agnes Beckwith.
,, 3 furl.	5 51 0	July 8, 1876	Thames (tide running)	Fred Cavill.
Twenty-five miles	9 0 0	Aug. 22, 1880	North River, N.Y., U.S.A.	Ernest von Shening.

PLUNGING.

Best Record Performances.

73ft. 1in., by J. Strickland, Swanston-street Baths, Melbourne, March 15, 1880.

68ft. 4in., by R. Green, Margaret-street Baths, Liverpool, July 17, 1879.

65ft. 0in., by T. Ingram, Floating Bath, Charing Cross, London, July, 31, 1879.

63ft. 10in., by Horace Davenport, Lambeth Baths, London, Oct. 9, 1882.

62ft. 8in., by H. J. Green, Marylebone Baths, London, Oct. 13, 1876.

62ft. 7in., by Horace Davenport, Marylebone Baths, London, Oct. 1, 1878.

61ft. 1½in., by C. L. O'Malley, Oct. 1879.

CHAPTER XXII.

RESCUE OF LIFE FROM DROWNING.

IT is required of us, in addition to the exact wording of the commandment, that we shall use all lawful endeavours to preserve our own lives and the lives of others.

With the Divine injunction hanging, as it were, over our every action, is it not a somewhat unwarrantable contradiction and anomaly in the laws of our country, that, while one who saves property at sea, or goes to save goods, is, according to the usages and laws of flotsam and jetsam, entitled to a stated proportion of the value of the property so recovered, nothing is said or enacted to legalise, or make compulsory the payment, or rewarding of those who may save a human life from drowning.

The National Life Boat Institution, humane societies, and swimming clubs do certainly in some cases recognise this bravery or intrepidity of conduct, by the presentation of a silver or bronze medal, or a parchment or vellum certificate, setting forth that on a certain date so and so saved the life of someone;

but beyond this self-imposed, and altogether voluntary notice of the act, he who saves the life of a fellow being has no legal claim for any recognition of services, which are in an eminent degree the most noble, unselfish, and useful that can be rendered.

Not only does the law say nothing on the subject, but, strange to say, we find it very often the case that the very persons who have been saved from an untimely death, not only forget, or neglect to offer compensation, but actually avoid meeting their preserver. This feeling we cannot understand, but that such is the case, those who have taken persons out of the water when delay would have resulted in death, can too often attest.

It has been suggested to the writer by a thoroughly practical and common-sense friend of swimming, that, on a swimmer proceeding to rescue, he might, when catching the person in need of help, put the question "HOW MUCH?" No doubt a sum much greater than in any other circumstances could be thought of or expected would be mentioned. It would be a more crucial test of what one valued his life at, than is usually the case once he is safe on land. It would, moreover, inspire the helpless one with confidence in his rescuer. He would in an instant be struck with the coolness of the person who could so offer to strike a bargain, and doubtless he would put himself more completely under the control of the rescuer.

We are told that it is more blessed to give than to receive, and without doubt it is a pleasant reflection for one to know that he has been the instrument in the hands of Providence of saving a life or lives, which, but for his intervention, presence of mind, and readiness to assist would have been lost. But that cannot be anything like a sufficient excuse for want of gratitude on the part of those who should be thankful. We are very intimate with swimmers who have when fully dressed, jumped into the water to save life, and this wetting of one's clothes, besides being uncomfortable, inconvenient, and sometimes dangerous to the health, has cost money to have the clothes put right, watch repaired, pocket-book, postage stamps, photos, cards, papers, and such like little etceteras replaced. Still, while death would certainly have followed any hesitancy or delay, no offer of compensation or reward has been made. We dare say no one possessed of ordinary feelings would grumble at being out of pocket to put his things in order after having been successful in saving a life. But when this occurs several times with a like result, one may be pardoned for thinking that the person who has been saved should at least make good what has been destroyed on his behalf, independent of reward at all.

No one who is at all respectably dressed can have his things put right for less a sum than about 20*s.* or 30*s.*, and for the novelty of the idea the articles may be itemised and valued as follows :

Drying, stretching, and pressing suit of clothes	0	10	0
Replacing tie or scarf	0	5	6
Taking down, oiling, and cleaning watch	0	7	6
Replacing pocket book or note book	0	5	0
Sundries, such as cards, photos, &c., say	0	5	0
	£1	13	0

So we consider a sum like this should be handed or sent to anyone who, in his exertion to save life, must pay the amount out of his own pocket if it is not made good to him.

We are inclined to think that, so far as the general public is concerned, heroes who have, under the most perilous circumstances, saved human life, may in after life suffer privations for lack of the wherewithal to purchase the common necessaries of life, or die "unwept for and unsung" in the comfortless workhouse.

This is not as it should be, and we submit that those men who have, by the exercise of promptitude and daring, and total abnegation of self, been the means of rescuing five, ten, or twenty lives from drowning, should be as legally entitled to pensions from the Government of the country as the sailor and soldier; for, have they not been restoring, it may be a father to his family, a dearly-prized friend to the social circle, or a useful and valued member of society to the country or to the world at large. By such restoration, mourning, suffering, and privation is lessened, and, indeed,

> The drying up a single tear has more
> Of honest fame than shedding seas of gore.

He has been preserving that which every being, every creature values as the most precious and priceless thing in the world.

In an interesting work entitled "Acts of Gallantry," by Mr. Lambton Young, for many years secretary to the Royal Humane Society of London, are lists, along with the details of each case, for which during the forty years ending 1871 the gold and silver medals of this society have been awarded for gallantry in saving life from drowning. The recipients number 957, nor do these figures represent in any way the number of lives saved, as some of the heroes, aye, and heroines, who earned the medals have saved many lives, and almost in every case under circumstances of extreme peril.

The cases of those to whom the bronze medal have been presented are not included in this work, and as these are by far the greater number we may safely assume that in those forty years, under the cognisance of the Royal Humane Society of London, upwards of three thousand persons have risked their own, and been instrumental in saving the lives of others.

All hail, and God speed to such societies, and long may our gracious sovereign Queen Victoria and the general public extend to them their aid and sympathy, to which, in such a useful sphere of labour, they are so much entitled.

To reduce to a science the saving of life may seem a bold step; but, thanks to the efforts of swimming

clubs and individuals, we have now arrived at such a point that all the difficulties and dangers to be apprehended in proceeding to save life from drowning have been lessened to such a degree, that to the person who has studied the subject, and practically tested the *modus operandi*, there is in reality very little risk of being drawn under or drowned.

It is of course essential to success that the rescuer, knowing his work, keeps cool and preserves his presence of mind, and, in full confidence of his knowledge of the subject, proceeds with caution and deliberation, taking his own way of doing it, accepting of no suggestions from anyone when the moment of action arrives, and being very particular to pay no attention to the cries of excited persons or crowds to hurry up, or hasten any of his movements.

The old idea of catching a drowning person by the hair or by the ears is now pretty well exploded, and it is being constantly demonstrated that it is easier to carry a person when he is lying on his back, than when prone on the water.

In proceeding to the rescue of anyone, it is not at all necessary to put off time, or tire oneself, in the endeavour to approach him from behind.

Swim to the person requiring help by the most straight and near way, get into close quarters if need be, and, putting out both hands catch him by the shoulders, then by a sudden movement push one shoulder away and pull the other towards you; by

so doing his face will have been turned outward. The rescuer should now lie back himself, kick the drowning person's feet out in such a way as will quite put him on his back; keep hold of both arms between elbow and shoulder, letting his back across the shoulders be immediately above one's own chest. Now, by means of the back-swimming motions, proceed to the nearest landing point.

It may be necessary, in the event of the drowning person struggling hard, to keep one's elbows close to one's own body and hold the drowning person's arms well out from his side. Doing this, and keeping well under the person being rescued, it will be almost an impossibility for the latter to turn round on the swimmer who is saving him. The rescuer should be particular to have the drowning person's feet and legs as wide as possible, and straight out; nor must he allow them to bend or come under the body. In order to keep the knees and legs in the required position, the rescuer may occasionally place his feet against the drowning person's legs between the back of the knee and the ankle and kick them outward.

It sometimes happens that the person being rescued offers resistance, and in a case of attempted suicide one may be caught round the neck, or round the waist; in these cases, the methods of extrication are as follows:

If caught round the neck one may contract his *chest,* hump the shoulders, and endeavour to with-

draw the head by pulling it downward along his assailant's chest. Should this *ruse* prove unsuccessful, no time should be lost in bringing the knees up between the two bodies, place the soles of both feet against the lower part of his opponent's chest, and, by means of a strong and somewhat sudden movement, stretch the legs straight out, at the same instant throwing the whole weight of the body backward. This sudden motion of the legs will press the air out of the other's chest as well as push him off, no matter how tight he may have been holding.

It will be apparent to almost anyone, that if caught by both arms round the waist or body, it will not be easy—in fact, will be nearly impossible, to bring the knees up as described in the preceding paragraph, nor can one hope to come out of the awkward position by withdrawing the head.

In this case the rescuer must lean well over on his opponent, put one hand round to his back at the small part, close the fist and press hard inward. While this is being done with the one hand, the other should be put over the drowning person's mouth; then with thumb and forefinger catch the nose and pinch the nostrils close, this will cause him to open his mouth for breathing purposes; now press inward with the hand that is at the back, and outward with the other, by so doing the undermost person's head is pushed backward under water. The grip on the nostrils is quickly freed, and the mouth opens,

when water is gulped; choking ensues, and not only is the rescuer let go, but the other is rendered so helpless as to be completely under control.

In cases when these methods have to be resorted to, it will in all likelihood happen that once the drowning person has been landed he will be very exhausted, and gentle treatment, with the sparing use of stimulants, will be necessary.

The means just described may seem harsh, some may term them cruel, but one must think nothing of that; there are two lives in jeopardy, and only extreme measures will be of any avail.

Should one swimmer be called on to assist another who finds himself, from whatever cause, too tired to go on, approach him, tell him to turn on his back, clasp his hands at the back of the helper's neck, and lie still. The rescuer will find it comparatively easy to swim by means of the plain stroke; the tired one's face being opposite his, the head leant well back, the arms straight out, the legs slightly apart, and the feet pointing outward.

CHAPTER XXIII.

RESUSCITATION.

Breathe in the lips reanimating fire,
Till warmed to second life the drowned respire.—PRATT.

DR. HOWARD'S new and direct method for restoring the apparently dead from drowning or suffocation, as approved of by the humane societies and lifeboat institutions of Great Britain and the United States of America:

1. *To Pump and Drain Fluids from Lungs and Stomach.*—This is done by placing the patient face downward over a hard roll of clothing, so that the pit of the stomach is the highest point, while the mouth is the lowest. The operator supplements the pressure of his hands upon the back of the patient, above the roll, if necessary, with all the weight and force at his command.

2. *For Artificial Breathing.*—The patient, whose clothing is ripped open from the waist, is laid upon his back, and the pit of the stomach is made the highest point by a hard roll of clothing beneath the back, while the head is the lowest part. The wrists

are crossed behind the head ; these a second person, if present, pins to the ground with one hand, while with the other the tongue is held forward by a piece of dry rag (a pocket handkerchief will do). The greatest possible expansion of the chest is thus obtained. The operator, kneeling astride the patient, grasps the most compressible part of the chest, on each side of the pit of the stomach, and, using his knees as a pivot, throws forward, slowly and steadily, his whole weight, until his mouth nearly touches the face of the patient. Then, by a final push, he throws himself back to his first erect kneeling position. By the sudden removal of the compressing force the elastic ribs spring back to their original position, and by this bellows action the air rushes into and is forced out of the chest alternately, as in natural breathing. Success may attend this process in a few minutes, but hope of a favourable result ought not to be given up under an hour.

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